



**2009–10**

**YEAR BOOK**

**AUSTRALIA**

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**2009–10**

**YEAR BOOK**  
**AUSTRALIA**

Brian Pink  
Australian Statistician

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Cover: The United Nations has declared 2010 to be the International Year of Biodiversity. Australia is one of the most biodiverse countries in the world. Many aspects of Australia's natural environment are central to our national identity.

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# Preface

Year Book Australia is the principal reference work produced by the Australian Bureau of Statistics (ABS). It provides a comprehensive statistical picture of the economy and social conditions in Australia. In addition, it contains useful information on Australia's geography and climate, the environment, government, international relations, defence, education, and the health and welfare systems.

The first Official Year Book of the Commonwealth was published in 1908, although individual Australian states and colonies had been producing year books for several decades previously. Over more than 100 years, the ABS and its predecessor, the Commonwealth Bureau of Census and Statistics, have maintained the tradition of publishing the Year Book. This is the 91st edition of Year Book Australia, and as with previous editions, feature articles are included.

The world-wide Girl Guide movement celebrates its centenary this year. To commemorate this, and to recognise the contribution that Guiding has made to the Australian community, the Australian Government has designated 2010 the Year of the Girl Guide. Girl Guides Australia gladly accepted the ABS's invitation to contribute to an article featured in this edition of the Year Book.

The United Nations General Assembly has proclaimed 2010 to be the International Year of Biodiversity. The Department of the Environment, Heritage, Water and the Arts, the Australian Government agency with responsibility for coordinating Australia's involvement in this International Year, has contributed an article that highlights the unique characteristics of Australia's biodiversity and explains the importance of Australia's biodiverse environment to individuals, society and the economy. Other articles are also presented consistent with this theme.

The United Nations has also deemed 2010 to be the International Year for the Rapprochement of Cultures and the Department of Immigration and Citizenship has contributed an article on Australia's cultural and linguistic diversity. This is supported by an article from the Australian Institute for Aboriginal and Torres Strait Islander Studies on the languages of Aboriginal and Torres Strait Islander peoples. Again, other articles consistent with this theme, are presented in this edition.

I am very grateful to these agencies, and all other organisations, for their excellent contributions. ABS products rely on information provided freely by individuals, businesses, governments and other organisations; their continued cooperation is very much appreciated.

My thanks also go to the many ABS staff who contributed to the preparation and production of *Year Book Australia 2009–10*.

Brian Pink  
Australian Statistician  
June 2010





# Introduction

Year Book Australia provides a comprehensive overview of the economic and social conditions of contemporary Australia. It is a statistically-oriented publication with sufficient background information to establish a context for the statistics and to assist in understanding and interpreting them. It also contains descriptive matter dealing with Australia's geography and climate, the environment, government, international relations, defence, education, and the health and welfare systems.

The source of many of the statistics are censuses and surveys conducted by the Australian Bureau of Statistics (ABS), the national statistical agency which produces the Year Book. However, a great deal of information is contributed by other, predominantly Australian Government, organisations. The official nature of the contributors to the Year Book ensures a high degree of objectivity and reliability in the picture presented of contemporary Australia.

This edition, the 91st, is the latest in a long series of editions extending back to the first in 1908. They provide a valuable source of information on the state of Australia at any point during this period.

Statistics contained in this edition are the most recent available at the time of preparation. In many cases, the ABS website <<http://www.abs.gov.au>> and the websites of other organisations provide access to more recent data. You can browse tables, time series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book, and download the information from the ABS website at no cost.

## Finding information

The contents pages at the beginning of the Year Book provide a guide to the broad subjects contained in each chapter. The index assists in locating information on more specific subjects. A list of articles from the previous ten editions is located at the end of this edition. Selected articles appear on the ABS website.

Tables and graphs in each chapter are numbered and the text is cross-referenced, as necessary, to the table or graph to which it relates.

## Further information

While the statistics and descriptive information contained in the Year Book provide a comprehensive overview of Australia, they represent only a relatively small part of the statistics and other information available. The Year Book is aimed primarily at providing a ready and convenient source of reference, both to those familiar and unfamiliar with a particular subject. In other words, because of the range of subjects, and limitations on the size of the Year Book, it aims at breadth rather than depth of information.

For those requiring information in greater depth, the Year Book serves as a directory to more detailed sources, with the source shown for each statistical table, graph and map. Where the ABS is the source, the title and catalogue number of the relevant product are quoted. For other sources, the name of the organisation is shown, and the product title where appropriate. Relevant ABS and other products together with a selection of websites are listed at the end of each chapter.

As well as the information included in this Year Book, the ABS may have other relevant data available on request. Charges are generally made for such information. Inquiries should be made to the National Information and Referral Service on 1300 135 070.

Annual reports of government departments and agencies also provide a valuable source of more detailed information on subjects covered in the Year Book.

For a variety of reasons, it is not possible for all statistics in the Year Book to relate to the latest or same year. Readers wishing to obtain or clarify the latest available statistics should contact the relevant source or website.

## **Reference to the national government**

Australia has a federal system of government comprising a national government, and the governments of the six states and two territories. In *Year Book Australia 2009–10* the national government is referred to as either 'the Australian Government' or 'the Commonwealth Government'. On occasions the shortened term 'the Commonwealth' or 'the Government' is used when referring to the national government.

## **Reference to Aboriginal and Torres Strait Islander peoples**

In *Year Book Australia 2009–10*, the term 'Indigenous' is sometimes used as a cover term for Aboriginal and Torres Strait Islander for simplicity, although Aboriginal and Torres Strait Islander people often prefer to use the terms 'Aboriginal' and 'Torres Strait Islander'.

## **Comments from readers**

The ABS endeavours to keep the balance of the contents of the Year Book in line with the ever-changing nature of the nation. For this reason comments on the adequacy and balance of the contents of the Year Book are welcomed and should be directed to the attention of the Editor of the Year Book, Australian Bureau of Statistics, PO Box 10, Belconnen ACT 2616.

## **Symbols and abbreviations**

The following symbols and abbreviations are shown in tables, graphs and diagrams:

'000	thousand
\$'000	thousand dollars
\$b	billion (thousand million) dollars
\$m	million dollars
A\$	Australian dollars
ABC	Australian Broadcasting Corporation
ABS	Australian Bureau of Statistics
AC	Companion of the Order of Australia
ACC	Australian Crime Commission
ACT	Australian Capital Territory
AFP	Australian Federal Police
Ag	silver
AIDS	Acquired Immune Deficiency Syndrome
ALP	Australian Labor Party
AM	Member of the Order of Australia
AO	Officer of the Order of Australia
APRA	Australian Prudential Regulation Authority
ASNA	Australian System of National Accounts
ATM	automatic teller machine

ADO	automotive diesel oil
ATO	Australian Taxation Office
Au	gold
Aust.	Australia
b	billion (one thousand million)
BAS	Business Activity Statement
BMI	body mass index
ct	carat (metric)
CPI	consumer price index
CSC	Conspicuous Service Cross
Cu	copper
Cwlth	Commonwealth
DSP	Disability Support Pension
DVA	Australian Government Department of Veterans Affairs
DVD	digital versatile disc
excl.	excluding
ED	Efficiency Decoration
EFTPOS	electronic funds transfer at point of sale
EVAO	Estimated Value of Agricultural Operations
FAO	Family Assistance Office
FTB	Family Tax Benefit
FTE	full-time equivalent
GDP	gross domestic product
GFS	Government Finance Statistics
GL	gigalitre
GP	General Medical Practitioner
GSP	gross state product
Gt	gigatonne
GVA	gross value added
ha	hectare
HIV	Human Immunodeficiency Virus
incl.	including
ICD-10	International Classification of Diseases 10th Revision
ICT	information and communication technology
IDF	industrial diesel fuel
ISDN	integrated service digital network
ISP	Internet service provider
kbps	kilobits per second
kg	kilogram
kL	kilolitre
km	kilometre
km/h	kilometres per hour
km <sup>2</sup>	square kilometre
kt	kilotonne
L	litre
Li	lithium
LNG	liquefied natural gas
LP	Liberal Party
LPG	liquefied petroleum gas
m	metre
m <sup>3</sup>	cubic metre
mill.	million
mm	millimetre
Mbps	megabits per second

MB	megabyte
MBS	Medicare Benefits Schedule
Mc	million carats
MHA	Member of the House of Assembly
ML	megalitre
MLA	Member of the Legislative Assembly
Mm <sup>3</sup>	million cubic metres
MP	Member of Parliament
Mt	megatonne
n.e.c.	not elsewhere classified
n.e.i.	not elsewhere included
n.e.s.	not elsewhere specified
n.f.d.	not further defined
no.	number
Ni	nickel
NPC	National Preschool Census
NSW	New South Wales
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development
OFR	other refinery feedstock
Pb	lead
PBS	Pharmaceutical Benefits Scheme
PHI	private health insurance
PJ	petajoule
Qld	Queensland
R&D	research and development
RANR	Royal Australian Naval Reserve
RFD	Reserve Force Decoration
SA	South Australia
SAR	Special Administrative Region
SBS	Special Broadcasting Service
SDRs	special drawing rights
SEIFA	Socio-Economic Indexes for Areas
SITC	Standard International Trade Classification
t	tonne
Ta	tantalum
Tas.	Tasmania
TAFE	Technical and Further Education
U	uranium
UN	United Nations
USA	United States of America
VET	vocational education and training
VFR	visiting friends and relatives
Vic.	Victoria
VVCS	veterans and veterans families counselling service
WA	Western Australia
Zn	zinc
°C	degrees Celsius

# Australia's Biodiversity

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*The International Year of Biodiversity aims to raise awareness of how the world's biodiversity is declining, what we can do and what is already being done to protect and restore it.*

*This article was contributed by the Department of the Environment, Water, Heritage and the Arts.*

Australia is one of the most biodiverse countries in the world. This article highlights the unique characteristics of Australia's biodiversity and explains the importance of Australia's biodiverse environment to individuals, society and the economy.

## What do we mean by biodiversity and why does it matter?

Biodiversity, or biological diversity, is a term used to describe the variety of living things in the natural environment: the different plants, animals and micro-organisms; the genes they contain; and the ecosystems in which they occur.

Biodiversity is valued by people for many reasons. It contributes to the emotional and spiritual well-being of individuals and communities; it is the life-blood that sustains rural and coastal communities; and it is fundamental to Indigenous people. Biodiversity – the land, waters and all living things - form Indigenous creation and dreamtime stories and songlines about how they and the world around them came to be. Their traditions and culture are inextricably tied to the Australian landscape and its biodiversity.

The natural environment has recreational value for many Australians: most people like nature and like to experience it. In 2008, 18 per cent of all domestic overnight trips in Australia included a nature activity, such as visiting a national park, botanical gardens or wildlife park, bushwalking, or whale watching, scuba diving and snorkelling. Visitors to Australia are



*Indigenous woman with cooked yam.*



*Kakadu National Park (World Heritage Area).*



*Great Barrier Reef (World Heritage Area).*

also attracted to the natural environment: 65 per cent of tourists that visited Australia in 2008 participated in one or more of the above nature activities. Nature-based visitors also stay almost twice the length of time on average as other international visitors, and spend 80 per cent of international visitor dollars.

Many aspects of Australia's natural environment, such as the desert, the *Great Barrier Reef*, and distinctive native species such as the koala, kangaroos and eucalypts are central to Australians' national identities. Australian native animals adorn the national coat of arms and many of Australia's sporting codes have them as national team emblems.

The biodiversity of the natural environment also provides a wide range of ecosystem goods and services that are integral to life. Resources

that sustain humans, such as food, medicines, timber, fuels and genetic materials, are all provided by a biodiverse natural environment. Biodiversity provides the oxygen we breathe and purifies the water that we drink. It builds and protects soils and stores and cycles nutrients essential for food production. It controls pests and breaks down pollutants in the environment. It also aids recovery from unpredictable natural or catastrophic events and helps to maintain a stable climate. These goods and services, whether gained directly or indirectly from biodiversity, represent the fundamental building blocks of human society<sup>1</sup>.

In economic terms, the rivers, wetlands and flood plains of the *Murray-Darling Basin* are thought to provide \$187 billion in ecosystem services annually, and terrestrial ecosystems up to \$325 billion per year. Biodiversity related industries also contribute significantly and directly to the Australian economy: it has been estimated that, per year, Australia's commercial fisheries are worth \$2.2 billion; kangaroo harvesting worth \$245 million; bushfood production worth \$100 million; and wildflower exports worth \$30 million.

### **Economic value of Australia's World Heritage Areas**

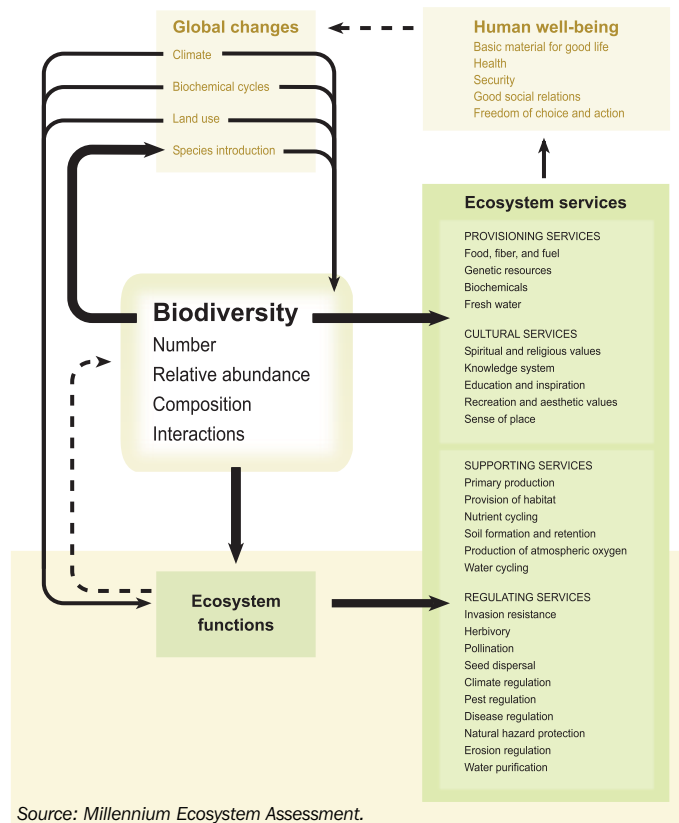
It has been estimated that tourism, recreational fishing and commercial fishing in the *Great Barrier Reef Marine Park* contributed \$5.4 billion to the Australian economy in 2006–07. The national economic value generated by 15 of Australia's other World Heritage Areas is of the order of \$7.25 billion annually, along with approximately 83,000 jobs.

### **Snapshot of Australia's biodiversity**

Australia is the most isolated inhabited continent and its geology is the oldest in the world. These factors, combined with its size and its long-term and geographical variations in climate make Australia one of the most biologically unique and diverse countries in the world.

Australia is the driest inhabited continent – the average annual rainfall is only 465 millimetres,

## 1. OVERVIEW OF ECOSYSTEM GOODS AND SERVICES PROVIDED BY BIODIVERSITY



compared with South America, which has an annual average rainfall of 1600 millimetres (the most of all the continents). Furthermore, only 12 per cent of this rainfall makes it to the ocean, with much of the rest evaporated and transpired by plants. Australian species have adapted to this low and variable rainfall. Many Australian bird species such as the zebra finch adjust their breeding cycles to climatic changes, while the koala derives much of its moisture needs just from the fresh leaf tips of eucalypts.

Australia's climate is geographically very variable compared to other countries, resulting in ecosystems ranging from deserts to tropical rainforests. Whilst some parts of Australia have extremely low average rainfall, such as Alice Springs (around 270 millimetres per year), other parts of the continent have very high average rainfall, such as the town of Tully in north *Queensland* (more than 4000 millimetres

per year). This variability in climatic zones in Australia has resulted in a particularly diverse range of species, with each climatic zone having its own uniquely adapted flora and fauna.

The age of Australia's landscape also means it generally has very poor soils with low nutrient levels. Many of Australia's plants and animals have adapted to these low-nutrient soils over millions of years. Australia's acacias have evolved means of capturing nitrogen in poor soils, while banksias have evolved to survive in low phosphorous soils. The *Central and Eastern Avon Wheatbelt* of south-west *Western Australia* (a National Biodiversity Hotspot<sup>2</sup>) is an example of the high levels of species endemism (species that are not found anywhere else) that have resulted from adaptation to low-nutrient soils. It has been identified as a national hotspot of biodiversity





Zebra Finch.

for its richness in endemic plants including grevilleas, hakeas, eucalypts, acacias, eriostemons, and the asteracea family.

## Mega-diversity and endemism

All of these factors have contributed to make Australia one of 17 mega-diverse countries that collectively hold around 70% of the world's flora and fauna. Australia is home to an estimated 570,000 different species (147,579 described species), giving it more than five

per cent of the world's plants and animals,<sup>3</sup> (table 2).

Australia has more endemic species than are currently known for any other country. Eighty-seven per cent of Australia's mammals are endemic, as are approximately 45 per cent of birds, 86 per cent of vascular plants<sup>4</sup>, 93 per cent of reptiles and 94 per cent of amphibians. These high levels of endemism are not only found in the terrestrial environment: of the estimated 600 inshore fish species in the southern temperate zone (non-tropical marine waters), about 85 per cent are found only in Australian waters.

### 2. NUMBER OF SPECIES IN THE WORLD AND AUSTRALIA

<i>Taxon</i>	<i>World Described</i>	<i>Australia Described</i>	<i>Australia Percentage</i>	<i>Estimate World</i>	<i>Estimate Australia</i>	<i>Percentage Endemic</i>
Vertebrates	61995	~7 363	11.9%	~80 500	~8 230	40.4%
Invertebrates	1 359 365	98 703	7.3%	~6755830	~320 465	unknown
Plants	310 129	24 716	7.9%	~390 800	26 845	86%
Fungi	98 998	11 846	11.9%	1 500 000	50 000	unknown
Others	~66 307	>4 186	6.2%	2 600 500	~160 000	unknown
<b>Total 2009</b>	<b>1 896 794</b>	<b>147 579</b>	<b>7.8%</b>	<b>~11327630</b>	<b>~566 398</b>	<b>unknown</b>

Note: unknown = no way of providing a meaningful estimate. ~ = number shown is considered to be a very close approximation of the exact figure.> = there is estimated to be at least or more than the number shown.

Source: Chapman, 2009.

## Australia's species richness

Some of Australia's ecosystems display great species richness. Australian deserts, for example, have a greater number of lizard species per square kilometre than do either the Kalahari or American deserts. Australian ants are also highly diverse compared with elsewhere in the world, with an estimated 4000 species. The 452 hectare Black Mountain Nature Reserve in Canberra alone has more species of ant than the whole of Britain (more than 100 species, as opposed to around 41 species in Britain).

## Terrestrial (land) ecosystems

Australia's unique flora and fauna inhabit some of the most diverse landscapes of any continent. Australia has been divided into 85 distinct bioregions based on climate, geology, landform, vegetation and animal communities. These bioregions represent the array of terrestrial ecosystems in Australia, ranging from deserts and rangelands that spread across 70 per cent of Australia, to tropical monsoon rainforests in the north, temperate grasslands and wet eucalypt forests in the south, and alpine regions in the south-east. In addition to these bioregions, Australia's external territories extend to sub-Antarctic and Antarctic regions.<sup>5</sup>

Examples of some of the unique bioregions across the continent are the *Australian Alps*, the *Arnhem Plateau*, the *Central Ranges*, *Cape York Peninsula*, the *Darling Riverine Plains*, the *Great Sandy Desert*, the *Jarrah Forests* of the south-west, the *Simpson Strzelecki Dunefields*, the *Tasmanian Central Highlands* and the *Wet Tropics* of the north-east.

## Inland aquatic ecosystems

Australia has a diverse range of aquatic habitats that range from saline terminal lakes, found in arid and semi-arid landscapes (such as *Lake Eyre*), to the sphagnum bogs of the *Australian Alps* and include waterways, lakes, swamps, and subterranean karst (cave) systems. Many different species of plants, algae, bacteria, invertebrates (such as insects, worms, molluscs and crustaceans), fish, frogs, reptiles, birds and mammals live in Australia's aquatic environment. Some of these species live their

entire life cycle in water, whilst others spend only part of their life cycle in, or near, water.



*Simpson-Strzelecki Dunefields.*



*Thorny Devils, Alice Springs Desert Park.*



*Snow Gum, Kosciuszko National Park.*

## Diversity of Australian landscapes – from the Alps to the Desert

The *Australian Alps* are located in the south-east of Australia, forming part of the *Great Dividing Range*. The Alps contain the highest peaks in Australia, with the *Kosciuszko Plateau* including the most striking examples of glacier-formed landscapes on the continent. Distinctive features of the *Australian Alps* include high altitude peaks and plateaus, glacial lakes and alpine and sub-alpine ecosystems. Many distinctive species have adapted to the cold climate of the Alps, including snow gums, unique wildflower species, mountain pygmy possums and migratory Bogong moths.

The *Simpson Strzelecki Dunefields* extend from the southeast of the *Northern Territory*, through the northeast of *South Australia* and into *Queensland* and *New South Wales*. In contrast to the *Australian Alps*, the landscape of the *Simpson Strzelecki Dunefields* is characterised by long parallel sand dunes, fringing dunefields, extensive sand plains, dry watercourses and saltpans. The predominant vegetation is Spinifex hummock grasslands, sparse acacia shrublands and some river red gum and coolibah river woodlands.

A very different range of distinctive species have adapted to this environment to that of the *Australian Alps*. Species such as *Acacia nelsonii*, the Eyrean grasswren and the Lake Eyre dragon are endemic species which have adapted to the unique desert landscapes of the area.

Because of Australia's geographic isolation, many of its aquatic species are endemic and include species that have existed continuously in Australia for millions of years (such as syncarid shrimps, petalurid dragonflies, lungfish and salamander fish). Studies of Australia's freshwater biodiversity have identified the likelihood of high levels of local endemism, groups of species and subspecies that are difficult to separate on physical characteristics (e.g. shrimps), and some species with limited distribution (mountain stream frogs, crayfish, and some species of mayflies,

stoneflies, caddisflies, dragonflies and damselflies). This means that there are likely to be many more aquatic species in Australia than are currently described.

## Marine and coastal ecosystems

Australia's marine and coastal environment is one of the most expansive and diverse in the world. The oceans of Australia cover 16 million square kilometres, and Australia's 37,000 kilometre coastline is one of the world's longest. Australia's *Exclusive Economic Zone* is divided into 41 provincial bioregions; the continental shelf is further divided into 60 meso-scale bioregions.<sup>6</sup> Marine habitats within Australia's oceans range from tropical marine to sub-Antarctic ecosystems. They include extensive coral reefs (both the largest coral reef province – the *Great Barrier Reef* – and the only extensive fringing reef on the west coast of a continent in the world – *Ningaloo Reef*), the largest areas of seagrass plains in the world, giant kelp forests, sand-bottomed habitats that cover much of the continental shelf, seamounts, and extensive mangrove forests (with more than 50 per cent of the world's mangrove species).

Australia's diverse marine ecosystems are home to 11 per cent of the world's known marine species. They support over 5000 species of fish – one of the world's most diverse fish faunas – and about 30 per cent of the world's sharks and rays. The southern Australian coastline alone is home to one of the most diverse collections of crustaceans, sea squirts, sea mats and sea mosses in the world as well as the highest known diversity of red and brown algae – more than 1150 species.

## Biodiversity decline in Australia

Biodiversity decline is the loss of variety in living systems. Decline can be measured through a number of characteristics: it can be decline in the number and range of species in a particular region, the loss of genetic diversity within populations of individual species, or more broadly, the loss and simplification of ecosystems.

## Importance of algae in the environment

Environmental importance:

- produces more oxygen than all the terrestrial plants in the world
- underpins the food chain as an important source of food for many animals, ranging from shrimp to whales
- influences global climate by absorbing large volumes of carbon dioxide.

Human uses:

- fertiliser
- energy source (biofuel)
- source of nutrition (with many vitamins and minerals)
- agent for thickening substances, such as ice-cream and toothpaste



Rock Cod, Ningaloo Reef.



King Penguins, Heard Island.

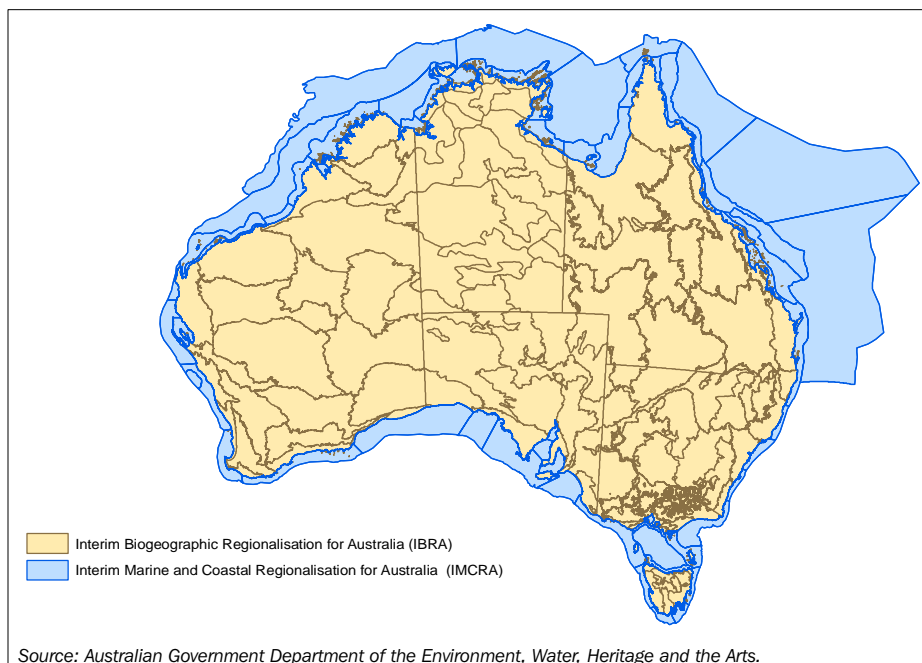
Australia has experienced the largest documented decline in biodiversity of any continent over the past 200 years. Under the *Environment Protection and Biodiveristy Conservation Act 1999* (EPBC Act) <sup>7</sup>, more than 50 species of Australian animals have been listed as extinct, including 27 mammal species, 23 bird species, and 4 frog species. The number of known extinct Australian plants is 48. Australia's rate of species decline continues to be among the world's highest, and is the highest in the OECD.<sup>8</sup>

## Diversity of Australia's seascapes – from Ningaloo to the Antarctic

*Ningaloo Reef* is located off the coast of *Western Australia*, stretching 230km from south of *Coral Bay* to the *Exmouth Gulf*. Because of its location in a transition zone between tropical and temperate waters, the Reef sustains a great variety of both tropical and temperate species and many species at the limits of their distribution. The diverse range of marine species which the Reef supports includes 300 species of coral, 500 fish species, 600 mollusc species, turtles, dugongs, and many migratory birds. Humpback whales migrate along the Reef and it is the only place in the world that whale sharks are known to visit regularly in significant numbers.

Australia's Antarctic and sub-Antarctic marine waters are also highly biodiverse, and hold a variety of unique marine species. Antarctic waters have a complex plankton-driven food chain which supports a number of species. The 350 species of phytoplankton identified in Antarctic waters supports species ranging from tiny zooplankton to whales. Other marine species which inhabit the marine Antarctic ecosystems include fish and squid species, a number of bird species, penguins, seals and sealions, and over 700 seaweeds (of which around 35 per cent are found nowhere else).

### 3. BIOREGIONS OF AUSTRALIA, Interim Biogeographic Regionalisation for Australia (IBRA) and Interim Marine and Coastal Regionalisation for Australia (IMCRA)



The list of nationally threatened species continues to grow in Australia, with 426 animal species (including presumed extinctions) and 1,339 plant species listed as threatened under the EPBC Act.<sup>9</sup> Furthermore, there is some evidence that the rates of recovery once a species has been listed as threatened, whilst it is difficult to determine in short time periods, may be particularly low. In a study conducted on 38 threatened species recovery plans across every state and territory, evidence of ongoing decline in populations was displayed in 37 per cent of cases.

Species and ecosystems have complex and important interrelationships. Some species play important roles in the maintenance of ecosystems, and the extinction of individual species can have flow-on effects and impact significantly on the function of the broader ecosystem. The Cassowary, for example, plays an important role in the dispersal of rainforest seeds, with the rate of germination of many plant species significantly higher after Cassowary digestion of the seeds. Equally so,

many ecosystems play significant roles in nurturing a variety of other species. Coral reefs and mangrove forests are both very important ecosystems in nurturing a great number of marine species. The decline of these ecosystems can affect hundreds of species that depend on them.

#### **The importance of species in maintaining ecosystems**

Species such as the bilby and the burrowing bettong (boodie) move huge amounts of soil in digging burrows and in foraging. These activities, along with their selective browsing on native shrubs, help shape the entire ecosystem through seed entrapment, plant germination and establishment, soil nutrient stores and fluxes, water infiltration and storage, soil respiration, microbial activity and litter decomposition. Unfortunately these species are now missing from most of their previous range. The ecosystems which depended on the role these species played are now also in decline.<sup>10</sup>



Cassowary.



Mangroves.

### Terrestrial (land) ecosystems

Terrestrial or land ecosystems have experienced significant decline since European settlement in Australia, and many continue to be under threat. More than a third of Australia's 85 bioregions have at least 30 per cent of their ecosystems threatened. Within extensively developed coastal areas and the *Murray-Darling Basin*, this figure is more than

50 per cent. Under the EPBC Act, there are currently 46 inland and inland aquatic ecological communities listed as threatened. The list of threatened ecological communities demonstrates biodiversity decline across a range of Australian landscapes, including alpine, warm and cool temperate, tropical and arid zones.<sup>11</sup>

Riparian zones, particularly the vegetation adjacent to waterways, are experiencing particular decline across Australia. Riparian systems are important in maintaining both terrestrial and aquatic biodiversity because of the role they play in regulating environmental conditions, such as water quality and flow. The condition of riparian zones is poor in more than two-thirds of Australia and is continuing to degrade in more than three quarters. Human impacts on the health of these ecosystems have been exacerbated by drought. One example of this decline is the condition of river red gums along the *Murray River*, Australia's major river system. River red gums are an important species in maintaining healthy river ecosystems. Eighty per cent of remaining river red gums on the *Murray River* floodplain in *South Australia* were stressed to some degree in 2003, and 20 to 30 per cent were severely stressed.

Decline in the vegetation and habitats of terrestrial ecosystems has led to declines of many species. For example, bird species have declined across Australia and significant local extinctions of populations have occurred. Twenty-nine bird species (out of 497 species recorded) showed significantly decreased reporting rates over the period 1977-1981 and 1998-2001. Another study showed that two-thirds of bird species in a 30,000 square kilometre area in northern and central Victoria have declined dramatically over the past 15 years (including species thought to be secure, such as the *Red Wattlebird*, *Striated Pardalote*, *Grey Shrike-thrush* and *Musk Lorikeet*). These declines were directly attributed to reduced food as a result of declines in native vegetation leading to low breeding success. The study indicates that improvements to the habitat quality and existing vegetation would likely increase the resilience of bird populations to other pressures<sup>12</sup>.

## Inland aquatic ecosystems

Aquatic biodiversity is declining more rapidly around the world than any other major group. This is also true of Australia, with many aquatic ecosystems across the continent, including rivers, wetlands and floodplains, experiencing severe stress.

About one-third of Australia's river length has lost between 20 and 100 per cent of the kinds of aquatic invertebrates that previously lived there. Wetlands in Australia, particularly in



River Red-gum, New South Wales.

southern Australia, are also in decline. As shown in Table 5, almost one-third of the 851 nationally important wetlands in Australia in 2001 had threatened water regimes. Altered flow regimes have resulted in the loss of 90 per cent of floodplain wetlands in the *Murray-Darling Basin*, 50 per cent of coastal wetlands in *New South Wales* and 75 per cent of wetlands on the *Swan Coastal Plain* in south-west *Western Australia*.

Decline in these important aquatic habitats has led to significant declines in aquatic species. Severe reductions in wetland extent in Australia, as well as the frequency of flood events, have reduced the numbers and breeding success of native water birds. Waterbird breeding grounds depend on regular flooding for their replenishment, and when the frequency of flooding decreases, so too does waterbird breeding. Overall, annual average

waterbird numbers fell from 1.1 million in 1983 to 0.2 million in 2004. Other important aquatic species such as many macro-invertebrates, freshwater fish and amphibians have also significantly declined in numbers and distribution.

## Marine and coastal ecosystems

While great advances have been made in our understanding of Australia's marine biodiversity, particularly in inshore and coastal habitats, comparatively little is known of deep-water and remote oceanic communities, with the likelihood of substantial numbers of species awaiting discovery in those environments. It is clear, however, that biodiversity in a number of marine and coastal areas is in decline. For example, the *Great Barrier Reef* is experiencing significant damage from a number of factors, including agricultural runoff and rapid changes in climate. The Intergovernmental Panel on Climate Change has warned that the *Great Barrier Reef* faces 'functional extinction' within decades.

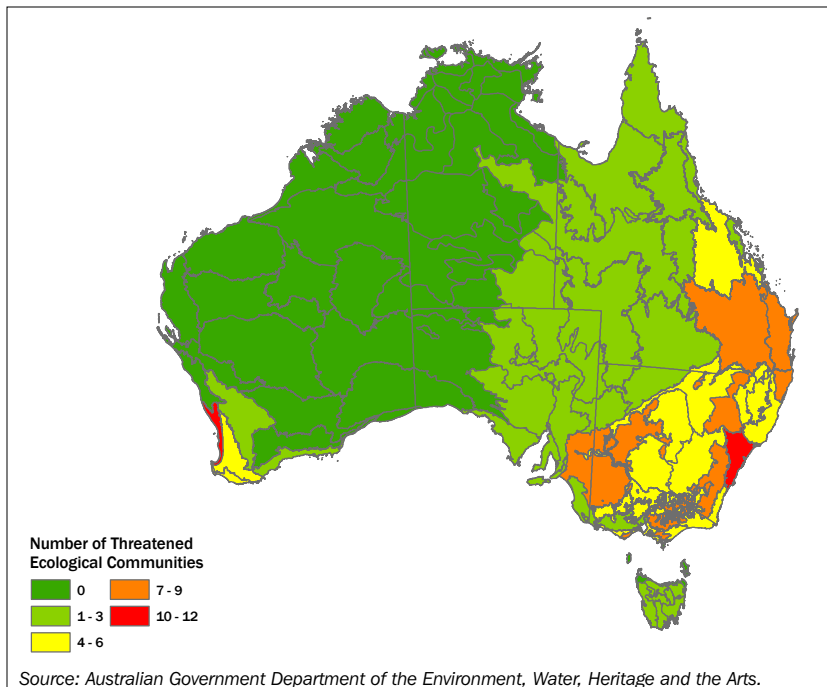
The decline in important marine and coastal ecosystems is having a significant effect on populations of marine species. A snapshot of preliminary findings following the 2008–09 summer counts of migratory shorebirds shows that in south east Australia 13 species of migratory shorebird appear to be declining, including the *Curlew sandpiper* (80% decline) and the *Sharp-tailed sandpiper* (25% decline). The *Monitoring Yellow Sea Migrants in Australia* (MYSMA) surveys also indicate a concerning level of decline; 12 of the most common shorebird species in north west Australia have shown declines, and four of these species have declined by over 50%. It is important to note that these declines cannot be attributed to any local habitat changes but rather, they reflect flyway-wide declines.

Many other marine species, including scalefish species, sharks, invertebrates, all marine turtles, dugongs, some seals, dolphins and whales are also experiencing major population declines.



*Bilby, Shark Bay.*

#### 4. NUMBER OF THREATENED ECOLOGICAL COMMUNITIES BY BIOREGION AS AT DECEMBER 2009





### Frogs as indicators of aquatic ecosystem health

Frogs are very sensitive indicators of aquatic ecosystem health. Frog populations have decreased significantly over the last 15 years, with 4 species of frog extinct (including both the southern and northern gastric-brooding frogs), 2 critically endangered, 14 endangered, and 12 listed as vulnerable. While some of this decline may be attributed to the Chytrid fungus, human impacts are likely to have exacerbated the problems frogs are experiencing.



*Southern Gastric-brooding Frog.*

### What are the major threats to biodiversity in Australia?

Human threats to biodiversity in Australia are numerous. They range from localised impacts such as clearance and fragmentation of habitats, unsustainable and destructive use of resources, and pollution, to impacts on broader scales, such as the introduction of feral species, deteriorating water levels and quality and the consequences of a changing climate. All of these impacts result from changes to the environment and the ecosystems which support biodiversity. Taken collectively, the cumulative effect of these impacts is a major threat to Australia's biodiversity.

### 5. NUMBER OF NATIONALLY IMPORTANT WETLANDS AND NUMBER WITH THREATENED WATER REGIMES AS AT 2001

<i>State or Territory</i>	<i>Total number of sites</i>	<i>Number of wetlands with threatened water regimes</i>
New South Wales	178	38
Victoria	159	57
Queensland	181	42
South Australia	69	19
Western Australia	120	51
Tasmania	89	13
Northern Territory	33	7
Australia Capital Territory	13	4
External Territories	9	—
<b>Total</b>	<b>851</b>	<b>231</b>

— nil or rounded to zero (including null cells)  
 Source: Davies et al.2001.

### Loss, fragmentation and degradation of habitat

One of the most significant factors in determining the health of ecosystems is the extent and quality of native vegetation. The locations where species are declared to be threatened correlates closely with areas where native vegetation has been extensively cleared and in regions where intensive development has occurred (Figure 7). As urban areas expand, development continues to encroach on ecosystems surrounding cities and biodiversity of these areas is increasingly being degraded or lost.

Vegetation clearance has both immediate and longer-term impacts on biodiversity and ecosystems. A Queensland-based review estimated that clearing of 1 square kilometre of woodland results in the deaths of about 3000 individual birds, 20,000 reptiles and 45,000 trees.<sup>13</sup>

It is not just the direct loss of vegetation that has impacts on species. Fragmentation of ecosystems, where species lose the ability to move between remaining areas of habitat, has longer-term impacts on the survival of many species. Isolation of individuals or groups in a population leads, over time, to a reduction in the genetic diversity of the entire population

and possibly local, or complete, extinction of species.

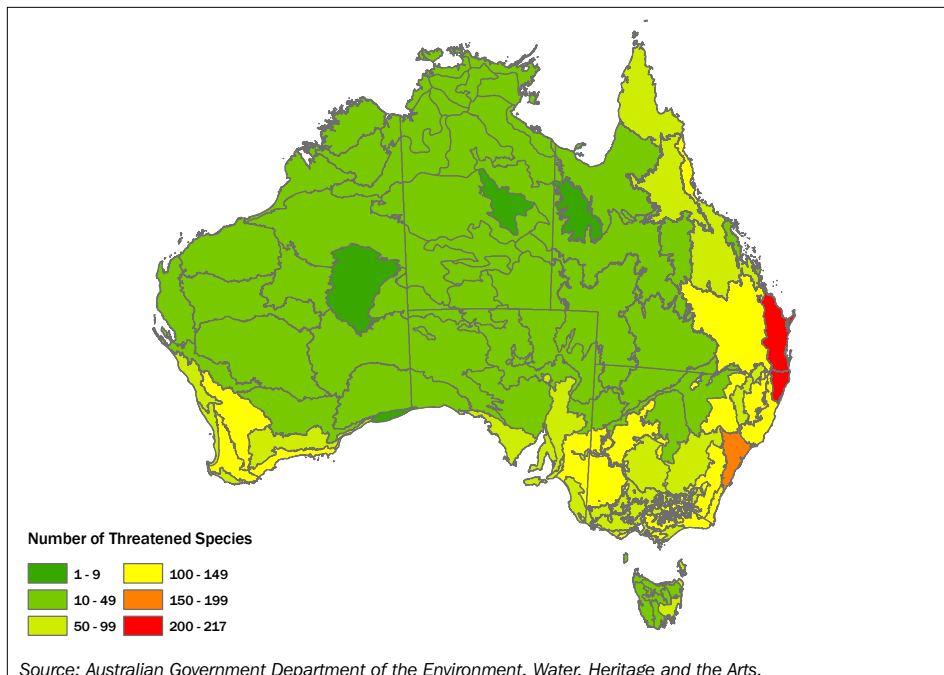
Since European settlement, about 13 per cent of Australia's vegetation has been cleared. This includes 34 per cent of rainforest, 30 per cent of mallee, 60 per cent of coastal wetlands in southern Australia, 31 per cent of Eucalyptus open forest, 99 per cent of temperate lowland grasslands and 34 per cent of Eucalyptus woodlands. In the marine environment, similar loss of habitat is occurring, with important breeding areas such as mangrove forests declining across Australia's coastline. Whilst broad-scale clearing has been reducing in Australia since 2002, native vegetation is still being cleared faster than it is being replaced. A net loss of around 260,000 hectares of forest per year occurred between 2000 and 2004, mainly from clearing for agriculture and urban development.

### Invasive species

Invasive species are a major factor contributing to the loss of biodiversity in Australia. The negative effects of invasives do not just involve direct loss of species from predation, competition with native species and grazing impacts. They also impact upon land degradation, soil erosion and changing habitats and landscapes. For example, a number of introduced mammals such as cattle, sheep, buffalo, pigs, horses, camels and goats cause extensive damage to vegetation, soils and water bodies through grazing and trampling.

Invasive species comprise around 6 per cent of Australia's terrestrial mammal species, and there are more than 2500 species of introduced plants established in the wild. In the marine environment, Australia has over 250 introduced species. Furthermore, it is estimated that approximately 20 new pests or diseases reach Australia each year.

### 6. NUMBER OF EPBC ACT LISTED TAXA BY BIOREGION AS AT DECEMBER 2009



The cost in monetary terms of introduced species on Australia's landscape is significant. The cost of weeds to Australian agriculture alone is estimated to exceed \$4 billion a year. This does not take into account costs associated with environmental, health or social impacts, which are often difficult to value. In *Kakadu National Park*, \$500,000 a year is spent trying to eradicate just one woody weed species (*Mimosa pigra*). In 1999, more than \$2 million was spent over just one month to eradicate the black striped mussel from the waters around Darwin.

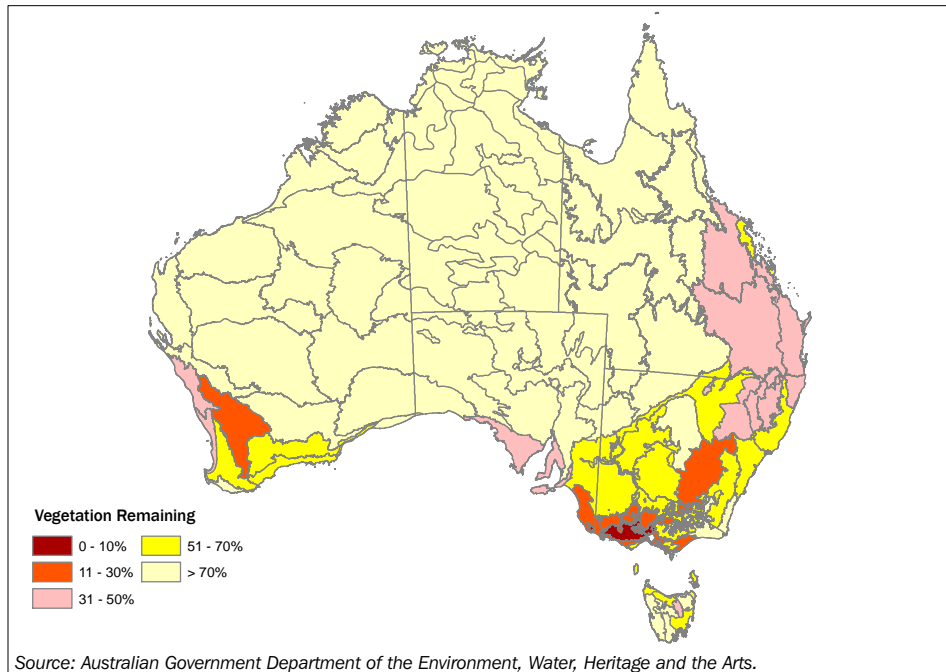
### Unsustainable use of natural resources

Use of resources is unsustainable if the rate of use of a resource exceeds natural replacement, or the conditions for replacement, e.g. soil health, are not maintained. Unsustainable use of natural resources, for example through over-fishing and over-intensive agricultural activity, is a significant contributor to biodiversity decline.

### Invasion of the Yellow Crazy Ant on Christmas Island

The endemic red land crabs (*Geocarcoidea natalis*) of *Christmas Island* are an important species in influencing the unique structural characteristics and species composition of the island's vegetation. The invasion of yellow crazy ants (*Anoplolepis gracilipes*) on the island has led to the reduction in numbers of the red crabs, and this has resulted in changes to the rates of seedling recruitment of rainforest trees and litter breakdown. This in turn has changed patterns of nutrient availability and has led to a rapid shift in forest structure and composition in the rainforest ecosystem. This has flow-on effects on other species that rely on the rainforest ecosystems of the island. For example, the Christmas Island Pipistrelle bat (*Pipistrellus murrayi*) has declined severely since the late 1980s and is now presumed extinct.<sup>14</sup>

## 7. PERCENTAGE OF ESTIMATED PRE-1750 NATIVE VEGETATION REMAINING BY IBRA BIOREGION



The number of fish stocks that are over-fished or are experiencing overfishing has been fluctuating over the past decade in Australia. In 2008, 18 per cent of stocks were overfished or experiencing overfishing and the status of 42 per cent of stocks was uncertain.

Significant impacts have also been caused by unsustainable farming practices. Over-intensive agriculture has led to severe land degradation across the continent, such as salinity, erosion and nutrient loss, through the removal of deep-rooted trees, over-irrigation of land and the over-grazing of stock. In 2002, it was estimated that salinity impacted almost 2 million hectares of land on 20,000 farms across Australia. Salinity has affected hundreds of species and is threatening many terrestrial and aquatic populations. In the Western Australian wheat belt, more than 450 endemic plants and 200 species of aquatic invertebrates are at risk of extinction from salinity.

## Pollution

Pollution, such as pesticides, nutrients and increased sediments can have serious effects on species and ecosystems. Pollutants poison plants and animals directly, as well as having broader impacts on ecosystems and the ability for species to survive in ecosystems. Toxins can stay in the environment for very long times (decades and longer), and can bioaccumulate in species, i.e. substances can accumulate in species and can have flow-on effects through the food-chain.

Contamination of marine and coastal areas is an especially significant issue in Australia. Nutrients, chemicals and sediments from agricultural and industrial activities can flow into coastal areas as runoff and have significant effects on marine and coastal biodiversity. The biodiversity of the *Great Barrier Reef* is an example of the effect pollution from agricultural runoff can have on marine environments. Hard coral diversity is decreasing as a result of increased macroalgae growth and filter feeding organisms taking advantage of increased nutrients and sediment, and nutrients inhibiting coral fertilisation rates.

## Changing fire regimes

Fire plays an important role in the management of Australia's landscapes. Many Australian species have adapted to fires and some ecological processes rely on fire to maintain their function. For instance, many plant species such as eucalypts and banksias are adapted to allow fast regeneration after fire, whilst others, such as grass trees (*Xanthorrhoea* species) and some orchids require fire in order to flower.

Fire regimes have changed significantly in Australia since European settlement. This has been a result of a number of factors, including a loss of Indigenous fire regimes, increased settlement, changes in vegetation and changes in climate. For example, larger, hotter and more frequent fires in parts of northern Australia have been detrimental to many small mammals, birds and sensitive plant species.

## 8. BIOLOGICAL FISH STOCK STATUS CLASSIFICATIONS BY YEAR, 1992–2008

Biological stock status	1992	1993	1994	1996	1997	1998	1999	2000-01	2002-03	2004	2005	2006	2007	2008
Not overfished (fully fished and underfished)	17	29	28	28	20	18	17	19	20	17	19	27	28	29
Overfished and/or overfishing	5	5	3	3	4	6	7	11	16	17	24	19	16	18
Uncertain	9	9	13	17	31	35	38	34	34	40	40	51	52	41
<b>Total stocks assessed</b>	<b>31</b>	<b>43</b>	<b>44</b>	<b>48</b>	<b>55</b>	<b>59</b>	<b>62</b>	<b>64</b>	<b>70</b>	<b>74</b>	<b>83</b>	<b>97</b>	<b>96</b>	<b>98</b>

Moreover, they can change the species composition of habitats by facilitating the introduction of more competitive weed species. In contrast, the *Wet Tropics* now has fewer fires as a result of increased grazing, which has resulted in shrubs and trees replacing grasslands and rainforests encroaching upon wet sclerophyll forests. The result is that landscapes are significantly changing and species which once inhabited some areas are being displaced.

### Changing climatic conditions

Climate change has emerged as one of the most significant threats to biodiversity in Australia. Severe impacts are expected for ecological communities across Australia including many important and iconic Australian landscapes, such as the *Great Barrier Reef*, the *Australian Alps*, many major river systems, and rangelands. The interaction of climate change with other threats is also important, as impacts

reduce the resilience of species and their abilities to adapt to a changing climate.

It is predicted that the impacts of climate change will be felt on a number of levels. There will be direct impacts on the ability of species to survive through increased temperatures, changed rainfall patterns, increased evaporation, and increased ocean temperatures. Furthermore, climate change will impact biodiversity through the increased frequency and intensity of fires, altered distributional ranges for invasive species, changes in disease distributions and processes, changes in vegetation, and inundation of habitats by rising sea levels.

Some climate change impacts are already being experienced. There is evidence that the distributions, life cycles and genetic makeup of many species are already being affected by climate change. Several bird species are now migrating to higher altitudes or higher latitudes, the large skink, *Tiliqua rugosa* is mating earlier and pairing for longer, and some fruit flies have experienced shifts in genetic composition. The *Biodiversity Vulnerability Assessment* (2009) stated that:

“Even under the most modest climate change scenario, the potential impacts on biodiversity will increase through most of this century. Formation of novel ecosystems, abrupt changes in ecosystem structure and functioning, and surprising, counterintuitive outcomes will become more common. If the current trajectories continue, though, we are headed for even more significant changes - a mass extinction event equivalent to those of the distant past, in fact, the sixth great extinction event in the Earth’s history.” (Steffen et al., 2009).

There are, however, many opportunities that a biodiverse landscape presents for mitigating climate change. Whilst it is well-known that forests sequester significant amounts of carbon dioxide from the atmosphere, there is growing evidence that other ecosystems such as wetlands also store significant amounts of carbon. There are many other biological processes that can contribute to reducing the effects of climate change. For instance, the maintenance of coastal vegetation and wetlands provides protection from the effects of sea-level rise and increased storm events.



Tate's Grass trees re-growing after fire.



Indigenous woman burning, Walalkala Indigenous Protected Area.

## How biodiversity is protected in Australia

Biodiversity decline is a product of historical and current decisions and actions. Many of the impacts that are seen today are the product of decisions taken in the past when the critical significance of biodiversity was not fully understood. Over the past 30 to 40 years, the Australian community has increasingly come to recognise the importance of biodiversity and the impacts of past decisions and current activity on the environment. Increased concern for the environment was marked by a number of environmental campaigns in the 1970s and 1980s, such as the campaign against the *Gordon-below-Franklin* dam in Tasmania. The proportion of Australians concerned about the environment has steadily risen since that time, with 82 per cent of Australians now concerned about the state of the environment.

The conservation of Australia's biodiversity is a shared responsibility across all parts of the community. It involves the protection of Australia's valuable natural assets, ensuring that these assets do not decline in the future, and also encompasses the restoration of assets and services that have undergone past decline. Many groups are involved in the protection of Australia's biodiversity, including governments at all levels, non-governmental organisations (NGOs), community groups and individuals. A range of activities are undertaken in order to protect, conserve and restore biodiversity, including establishing and managing reserves, investing in on-ground action, regulating

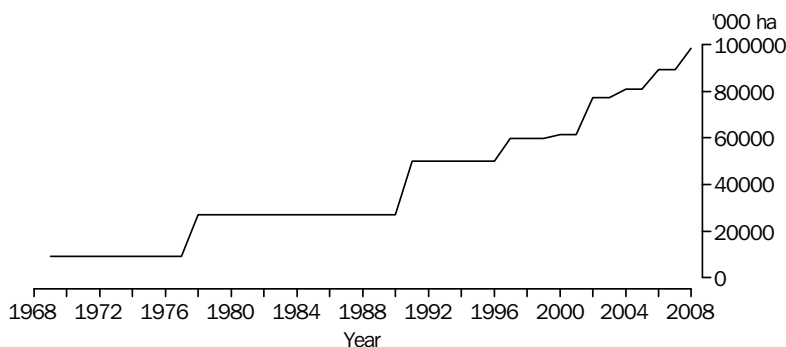
development, and using market-based approaches to create incentives to protect biodiversity.

Australia's network of reserves conserves examples of our natural landscapes and native plants and animals. The network includes marine and terrestrial reserves managed by governments, including natural World Heritage areas (such as the *Gondwanan Rainforests* of eastern Australia and the *Great Barrier Reef Marine Park*); Indigenous-owned land or sea managed for conservation; and ecosystems protected on private land.

Since 2000, the formal reserve area has increased from approximately 62 million hectares to approximately 89 million hectares, or over 11 per cent of Australia's land area (Figure 9). Similarly, the area of marine protected areas has increased significantly in the past ten years (Figure 10).

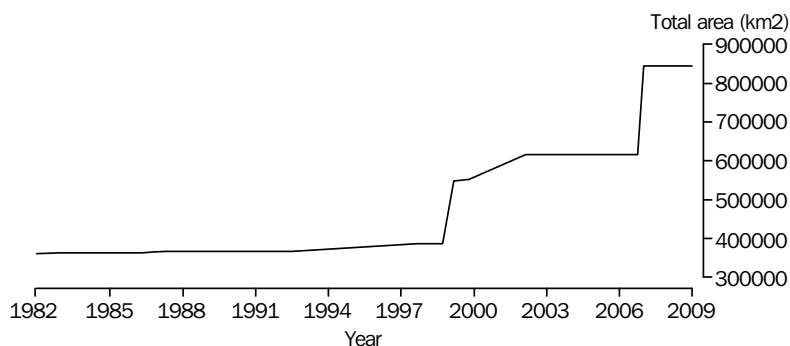
Governments, community groups, businesses and individuals are involved in a range of on-ground action to protect and restore Australia's biodiversity. Revegetation programs, weed control and feral animal control initiatives are just a few examples of the work being undertaken. The number of environmental volunteer groups registered across Australia now exceeds 470. Whether through community groups, private organisations or government-supported programs, these initiatives provide an opportunity for everyone in the community to become directly involved in conserving Australia's biodiversity.

**9. INCREASE IN AREA OF TERRESTRIAL PROTECTED AREAS IN AUSTRALIA, 1968–2008**



Source: Department of Environment Water Heritage and the Arts, 2009.

## 10. INCREASE IN AREA OF COMMONWEALTH MARINE PROTECTED AREAS, 1980–2009



Source: Department of Environment Water Heritage and the Arts, 2009.

Regulation of environmental impacts also plays a part in the protection of biodiversity. The Commonwealth Government legislates to protect specific defined matters of national environmental significance, while local and state and territory governments regulate environment protection more broadly.

Collectively, governments regulate actions such as land clearing, urban and industrial development, resource use and the import and export of species to ensure that these activities do not have unacceptable environmental impacts.

Market-based mechanisms have become more prominent in their use to conserve biodiversity in Australia. Market mechanisms seek to create a market that values the environment as an important resource, and create an enduring culture of conservation on private lands, for example through the provision of financial incentives to landholders for the protection of natural areas or through the requirement to offset the environmental impact of development. There is a growing number of government and privately run market-based schemes across Australia.

### Case study 1: Indigenous connections to country and conservation initiatives

For Indigenous Australians, biodiversity is inextricably linked to their identity, culture and traditions. The *Anindilyakwa*, the traditional owners of the *Groote Eylandt* archipelago on the western side of the *Gulf of Carpentaria* in the *Northern Territory*, encapsulate this relationship to country and all living things:

“Our land and sea country is everything to us. It nourishes and sustains us. It contains the story of our history that stretches back forever. It teaches us our law and it celebrates our ancestors. It connects today’s people to the past and holds the sites and signs that guide the men and women of our clans.”

Indigenous people's continued presence and ties to their traditional estates has helped maintain the health of our country. These are the people who have protected and managed many of the continent's environmental assets and our biodiversity since time immemorial.

In the *Northern Territory* lies the important *Arnhem Coast* bioregion, which is entirely Aboriginal land which includes three *Indigenous Protected Areas* - *Anindilyakwa*, *Dhimurru* and *Laynbapuy*. An *Indigenous Protected Area* (IPA) is an area of Indigenous-owned land or sea where traditional owners have entered into an agreement with the Australian Government to promote biodiversity and cultural resource conservation.

This bioregion is a unique and diverse environment with coastal islands, savanna, woodland, rainforests, wetlands, mangroves, rocky escarpments and monsoon vine forests. Compared with the recent loss of wildlife in most areas of Australia, the wildlife of north-eastern *Arnhem Land* generally is notable for its apparent intactness.

Along the coastal area, there are long stretches of beach, rich reef systems and some of the best sandsheet and sand-dune formations in northern Australia. The coastline provides feeding habitat and nesting sites for several threatened species of marine turtle, supports breeding seabird colonies and distinctive plants and rare animal species such as the Gove crow butterfly. Recently, two northern hopping mice were found on *Groote Eylandt*. This species was last sighted on mainland Australia in 1975.

The flora of the area represents a rich and diverse natural resource and species have many potential uses. Plants play an important role in ceremonial and ritual aspects for the Indigenous people of this region. Plant names and uses were bestowed by ancestral creation figures. Some species are the source of food, some of medicines and some of material for the manufacture of tools.

A number of species also function as "bio-indicators". For example, flowering signals the availability of desirable seasonal resources such as *Djinydjalma* (mud crabs) or *Guku* (sugarbag, wild honey).

The lack of development and broad-scale habitat modification in the area has preserved many of the environmental and cultural values. However, climate change and the spreading of weeds and feral animals presents challenges for environmental conservation.

Along the *Arnhem Coast* bioregion, *Working on Country* rangers from *Anindilyakwa*, *Dhimurru* and *Laynbapuy* apply current resource management techniques and traditional knowledge to look after their country and conserve and protect biodiversity.

The elders have passed on their traditional ecological knowledge to the rangers as it is a cultural obligation for all Indigenous people to care for country. In doing so, they are not only looking after our environment for future generations, they are keeping culture strong and building a more resilient environmental community.

### **Case study 2: Market-based mechanisms: Tasmanian Forest Conservation Fund and Environmental Stewardship Programs**

Around 11 per cent of Australia, predominantly on public land, is presently protected through the *National Reserve System*, including Commonwealth, state and territory reserves and *Indigenous Protected Areas*. In addition, a number of programs exist throughout Australia to manage the environment and conserve threatened species and ecological communities on public and private lands. Despite considerable government and community efforts many important ecological communities, native habitats and species on private lands remain at risk.



Around 77 per cent of the Australian land surface is managed privately. To achieve significant land-based environmental outcomes such as biodiversity conservation the Australian Government needs the ongoing involvement of private land managers.

The use of market based instruments (MBIs) as a mechanism to deliver incentives to land managers is increasing in Australia. MBIs seek to create a market that values the environment as an important resource, and create an enduring culture of conservation on private lands.

The Australian Government has run a number of programs that use MBIs to deliver funds more strategically and cost-effectively. This case study will examine two of these programs – *The Tasmanian Forest Conservation Fund*, and *Caring for our Country's Environmental Stewardship*. These programs were designed to complement existing policy approaches including grant programs and legislation by providing incentives to private land managers to undertake activities on their own land, in a time frame where restoration and protection of targeted environmental assets is achievable.

### **The Tasmanian Forest Conservation Fund Program**

The *Forest Conservation Fund* (FCF) was established under the 2005 Tasmanian Supplementary Regional Forest Agreement, as an innovative, market based initiative, designed to encourage private landowners to protect old-growth and other high conservation value forests, through conservation covenants or assisted purchase. The Program ended in June 2009.

The FCF was a voluntary program aimed at increasing the private land component of the Comprehensive, Adequate and Representative Reserve System with the objective of protecting up to 45,600 hectares of high conservation value forests.

The FCF used a number of market-based mechanisms to engage landowners, including a competitive tender process,

establishment of a revolving fund for conservation purchases and negotiated or fixed price offers. All participating landowners were required to provide protection of forested land through appropriate covenanting arrangements.

The competitive tender process required a fit-for-purpose metric, the *Conservation Value Index* (CVI), to assess the relative conservation benefits of individual proposals. The CVI assessed the following three elements of each proposal submitted by:

- the ecological significance of the proposal's contribution to the *Comprehensive, Adequate and Representative* (CAR) reserve system;
- the service the proposal provides to conservation, as well as current conditions of the vegetation and risks, and
- the security of the proposal measured as the duration of an on-title covenant over the proposal area.

The FCF Program secured some 140 conservation covenants (mostly perpetual), over 27,000 hectares with approximately 10,700 hectares of this forest considered to be old-growth.

Assisted land purchases added to the overall result with seven properties totalling 438 hectares purchased through the *Mole Creek Forest Karst Program* and another 918 hectares secured, to-date, through the Revolving Fund.

### **Caring for our Country – Environmental Stewardship**

Environmental Stewardship is an element of the Australian Government's *Caring for our Country* initiative that uses market approaches to maintain and improve the condition and extent of high value environmental assets listed under the *Environment Protection and Biodiversity Conservation Act 1999* as matters of National Environmental Significance.

*Environmental Stewardship* uses a voluntary tender process to provide competitive funding for private landholders to carry out specific conservation activities on their land for up to 15 years. This contract period provides a timeframe sufficient to improve vegetation condition or extent and will allow long-term monitoring of vegetation change and changes in landowner attitudes and values. The program uses a conservation index to order bids based on their value-for-money.

The first asset targeted under *Environmental Stewardship* is the critically endangered *White Box*, *Yellow Box* and *Blakely's Red Gum* and derived grasslands that forms the *Box Gum Grassy Woodland* ecological community. This nationally endangered community extends from southern *Queensland* through the *NSW* wheat–sheep belt and into northern *Victoria*. The Woodland has been reduced to less than five per cent of its original extent. It occurs as remnants of varying quality and size on private agricultural land, where, without active management, it is still at risk.

Participation in the *Stewardship* program is voluntary and in the first 18 months of operation over 992 private landowners have expressed an interest, over 210 have submitted tender bids and by October 2009 the Program had contracted 130 land managers to improve the condition and extent of over 11,000 hectares of box gum woodland on their land.

*Environmental Stewardship's* focus is on creating markets for purchasing long-term conservation improvements on private land and fills a gap in the policy tools available to government. Over time this approach will influence the values and behaviours of private land managers. The *Environmental Stewardship* approach is designed to complement existing approaches to conservation such as regulation, short-term grant programs, setting aside land in protected areas such as national parks and reserves, and capacity-building education activities.

## Conclusion

Despite the decline that has occurred in Australia's biodiversity, the continent still holds one of the most rich and diverse collections of flora and fauna in the world. It has an extraordinary array of fishes and reptiles, a significant percentage of the world's birds and mammals, a large proportion of invertebrate species, many of the world's plant species and a large proportion of the world's fungi species. Australia's marine ecosystems hold one of the most diverse arrays of species in the world, and are relatively healthy compared to marine ecosystems in other parts of the world. The inland aquatic environment has a huge diversity of unique species and Australia's terrestrial ecosystems still hold one of the most unique and rich arrays of species of anywhere in the world.

Australians enjoy the many benefits of a biodiverse natural environment. Whether it be through tourism and recreation activities (such as visiting a national park, bushwalking, recreational fishing, and snorkelling), through the environmental resources and services which biodiversity provides (such as food, medicine, timber and water purification), or through a healthier surrounding environment (such as the bushland surrounding homes and the parklands in our cities), biodiversity is important to many Australians. These important resources and services that biodiversity brings to Australians makes it an asset worthy of our respect and protection.

The Australian community has become very aware of the importance of biodiversity and the implications of a declining environment. Despite action over many years from governments and the wider community, biodiversity continues to decline in Australia. Maintaining Australia's remarkably biodiverse environment will continue to be a significant challenge for governments and the community.

## End notes

1. For further information on ecosystem goods and services see:  
<http://www.millenniumassessment.org/en/Glob al.aspx>

2. For further information on National Biodiversity Hotspots see:  
<http://www.environment.gov.au/biodiversity/ho tspots/national-hotspots.html>)

3. For further information on Australia's species see:  
<http://www.environment.gov.au/biodiversity/ab rs/index.html>

4. A vascular plant is a plant with specialised tissues for conducting water and nutrients (xylem and phloem). They include ferns, conifers, cycads and flowering plants.

5. For further information on Australia's bioregions see:  
<http://www.environment.gov.au/parks/nrs/scien ce/ibra.html>

6. For further information on Australia's marine bioregions see:  
<http://www.environment.gov.au/coasts/mbp/im cra/index.html>

7. Environment Protection and Biodiversity Conservation Act 1999 – the Commonwealth Government's key piece of environmental legislation. For further information on the EPBC Act see:  
<http://www.environment.gov.au/epbc/index.ht ml>

8. OECD (Organisation for Economic Cooperation and Development) – a group of 30 western democratic nations.

9. For further information on nationally threatened species see:  
<http://www.environment.gov.au/biodiversity/thr eatened/index.html>

10. For further information see: Noble, J., Muller, W., Detling, J., Pfitzner, G. 2007. Landscape ecology of the burrowing bettong: Warren distribution and patch dynamics in semiarid eastern Australia. *Austral Ecology*, Volume 32, Number 3, pp. 326-337.

11. For further information on threatened ecological communities see:  
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12. For further information see: Mac Nally, R., Bennett, A., Thomson, J., Radford, J., Unmack, G., Horrocks, G., Vesk, P. 2009. Collapse of an avifauna: climate change appears to exacerbate habitat loss and degradation, *Diversity and Distributions*, 1-11, Blackwell Publishing.

13. For further information see: Cogger, Hal. & World Wide Fund for Nature Australia 2003. Impacts of land clearing on Australian wildlife in Queensland, World Wide Fund for Nature Australia, Sydney.

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<http://www.environment.gov.au/parks/publicati ons/christmas/flying-foxes-brochure.html>

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# Australia's cultural and linguistic diversity

*This article was contributed by the Australian Department of Immigration and Citizenship (2009), in recognition of 2010 being the United Nations International Year for the Rapprochement of Cultures.*

In addition to our rich Indigenous cultures, Australia is a nation built on the migrant experience and consequently is one of the most diverse countries in the world. In this, the United Nations declared International Year for the Rapprochement of Cultures, Australian society is a microcosm of the entire world and faces a similar challenge, to live harmoniously, with respect and cooperation regardless of culture, language or religion.

Today, there are approximately 22 million Australians, speaking almost 400 languages, including Indigenous languages<sup>1</sup>, identifying with more than 270 ancestries and observing a wide variety of cultural and religious traditions. Australia remains a socially stable country, not despite its cultural diversity, but because of the acceptance of it and the firm belief that diversity is one of the country's enduring strengths.

The prevailing cohesiveness of Australian society through the waves of post war migration is a defining characteristic of the nation. Leadership by governments at all levels, through policies, programs and public messages, reinforces social cohesion and positive community relations. This is particularly important when the Australian community or any part of it is under economic, social or political pressure.

The Australian Government offers a continuum of settlement support programs from the time a person arrives in Australia, to bringing people together to build a sense of community through our cultural diversity programs, through to promoting citizenship. Thus the Australian Government's settlement and cultural diversity programs contribute to building a fair and welcoming national community, all of whose members feel a sense of belonging and have opportunities to participate in all aspects of life. Significant social tensions have been avoided through proactively addressing relevant issues. Such

policy and program investment delivers win-win outcomes for individuals and society as a whole. They reinforce the importance for Australians of recognising their responsibilities in being fair, respectful and inclusive of others, taking into account our different backgrounds, needs and circumstances.

Some of these Australian Government programs are implemented by the Department of Immigration and Citizenship (DIAC). Other programs involve the coordinated efforts of several government departments at both the national and the state/territory levels.

## Working with the community

Many of DIAC's cultural diversity programs focus on bringing people together to build a sense of community based on shared experiences. The Diverse Australia Program is primarily a community-based strategy for all Australians which aims to address issues of cultural, racial and religious intolerance by promoting respect, fairness, inclusion and a sense of belonging for everyone.

The Diverse Australia Program was launched on 28 January 2009 to replace the Living in Harmony program. It provides funding, educational resources and information to help organisations and communities promote:

- the importance of all Australians respecting one another regardless of cultural, racial or religious differences
- the fair treatment of all Australians, encouraging people to recognise that our interactions should be accepting of, and responsive to, each other's backgrounds, circumstances, needs and preferences
- opportunities for people to participate equitably in Australian society and to understand the rights and responsibilities that we share as part of that society

- a sense of belonging for everyone by helping communities work towards a spirit of inclusiveness and a shared identity as Australians, and
- the benefits of living in a multicultural society.

The program is delivered through four key strategies:

- a small grants scheme under which organisations can apply for funding of up to \$5000 for community relations activities
- funding of between \$5000 and \$50,000 for community groups and organisations to deliver projects that address local community relations issues
- large scale projects to respond to emerging issues of racism or intolerance, developed in partnership with DIAC and supported by funding of up to \$150,000
- an information and communication component which aims to:
  - promote the program and its objectives
  - engage the community in fostering inclusion and cohesion in their local area
  - encourage all Australians to celebrate the benefits of cultural diversity on Harmony Day, on 21 March each year.

Additional information, including examples of community and large scale projects, is on the Diverse Australia Program website <[www.harmony.gov.au](http://www.harmony.gov.au)>.

### **Building community networks**

The government recognises and supports the diversity of Australian community life through its Community Liaison Officer network. Through this network, the Australian Government maintains constructive dialogue with over 6000 organisations and individuals with an interest in our multicultural society, including representatives of Australia's ethnically, culturally and religiously diverse population. This network supports ministerial and departmental attendance at community events and advises the government on local and community relations issues.

Community Liaison Officers work with all levels of government, supporting and sometimes organising community consultations. This work is particularly important when a crisis

occurs in Australia or overseas, whether because of a domestic or overseas incident, natural disaster or pandemic.

Establishing links between the government and communities enables the government to better promote community harmony and the benefits of diversity, and to develop informed program and policy responses to community relations issues.

### **Community consultation**

Consultation with community groups is crucial to the development of accessible and responsive policy, programs and services. The Federation of Ethnic Communities' Councils of Australia is the national peak body representing Australians on issues relating to cultural diversity. It is funded by the Australian government to:

- advocate for, and promote a just, inclusive, multicultural Australia
- network with Australia's diverse communities and provide advice to government on cultural diversity issues and the accessibility of government services
- facilitate capacity building, participation and inclusion of new and emerging communities into the broader Australian community.

The Australian Multicultural Advisory Council was launched by the Minister for Immigration and Citizenship, Senator Chris Evans, on 17 December 2008.

The 16 member council brings together expertise and networks from across government, community and private sectors to support the Australian Government in developing its cultural diversity programs and communicating with the public on related issues. It considers cultural diversity issues of concern to all Australians, including intolerance, racism and community relations issues, as well as the benefits arising from such diversity.

Council members have not been chosen in any representational capacity, but are a group of individuals who have already contributed significantly to, and reflect, the success of a diverse Australia. The council chair is Mr Andrew Demetriou, the chief executive of the Australian Football League. Biographies of the

council members are available on the departmental website at <www.immi.gov.au/about/stakeholder-engagement/national/advisory/amac>.

## Participation

The Australian Government's commitment to assisting newly arrived migrants and refugees to fully participate in the community as soon as possible after arrival is achieved through a range of settlement services. They include:

- The Integrated Humanitarian Settlement Strategy (IHSS) provides initial, intensive settlement assistance for resettled refugees. Their needs are assessed and addressed through an integrated case management approach. Services provided through the IHSS include: initial information and orientation assistance; assistance in finding accommodation; a package of goods to help establish a household; information and assistance to access services and become part of the local community; and short term torture and trauma counselling.
- The Adult Migrant English Program provides English language tuition for eligible adult migrants and humanitarian entrants who do not have functional English. Tuition is designed to provide clients with basic language skills to assist them to settle successfully in Australia.
- Translating and Interpreting Service (TIS) National provides a national translating and interpreting service 24 hours a day, 7 days a week. The service is provided to allow non-English speakers access to information and services.
- The Settlement Grants Program (SGP) provides community organisations with funding to deliver settlement services to recently arrived Humanitarian Program entrants, family stream migrants who have low English proficiency and the dependants of skilled migrants in rural and regional areas who have low English proficiency for up to five years after arrival. The SGP aims to deliver services which help clients to become self reliant and participate equitably in Australian society as soon as possible after arrival.

## 1. PEOPLE CONFERRED CITIZENSHIP

Year	people conferred citizenship
1999–00	70 836
2000–01	72 070
2001–02	86 289
2002–03	79 164
2003–04	87 049
2004–05	93 095
2005–06	103 350
2006–07	136 256
2007–08	121 221
2008–09	86 981

Source: 2006 Census of Population and Housing.

## Citizenship

Australian citizenship is an important part of Australia's migration story. More than 4 million people have become Australian citizens since Australian citizenship was introduced in 1949.

Citizenship provides migrants with formal membership of the Australian community and allows them to demonstrate their commitment to our country. The Australian Government views citizenship as a fundamental component of social participation and cohesion and encourages its take-up through active promotion and education.

As permanent residents of Australia, many migrants have already enjoyed living in Australia's free and democratic society. Taking up Australian citizenship brings a range of privileges, such as voting and the right to seek election to Parliament, as well as new responsibilities such as serving on a jury if called to do so.

To encourage active participation and involvement, most people who apply for citizenship are required to demonstrate a basic knowledge of the English language, an adequate knowledge of Australia and of the responsibilities and privileges of citizenship, and an understanding of the nature of their application. However, exemptions exist for some prospective citizens to ensure that Australian citizenship is inclusive and that disadvantaged or vulnerable people also have access to citizenship.



Strengthening Australia's social cohesion will continue to be a key priority for the Australian Government. The success of settlement, multicultural and citizenship policies and programs to date is reflected in the high take up rate of Australian citizenship. The 2006 Census found almost three-quarters (73%) of people born overseas who had been resident in Australia for two years or more were Australian citizens.

### **Improving government policies, programs and services**

The Australian Government recognises the importance of fair and accessible mainstream policies, programs and services. The Access and Equity Strategy, coordinated by DIAC encourages and supports all federal agencies to respond to the cultural, linguistic and religious diversity of the Australian population in the design, delivery, monitoring and evaluation of their policies, programs and services. This includes government services delivered by contracted service providers.

The Access and Equity Framework contains four principles - responsiveness, communication, accountability and leadership – each of which has a set of strategies to guide its implementation. The framework is contained in the latest report on agencies' access and equity performance, Access and Equity in Government Services Report 2006–08, available at

<[www.immi.gov.au/about/reports/access-equity/2008](http://www.immi.gov.au/about/reports/access-equity/2008)>.

To strengthen the Access and Equity Strategy, from 2009–10 DIAC is encouraging a greater focus on understanding and addressing the barriers to access and equity through increased community consultation and community involvement in improving programs and services. DIAC is also increasing support for agencies to meet their access and equity responsibilities through training seminars and other ongoing guidance.

### **End notes**

1. See feature article "Languages of Aboriginal and Torres Strait Islander peoples – A uniquely Australian Heritage" in this edition of Year Book Australia.

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# Languages of Aboriginal and Torres Strait Islander peoples – A uniquely Australian heritage

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*This article was contributed by Kazuko Obata and Jason Lee, Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) in recognition of 2010 being the United Nations Year for the Rapprochement of Cultures.*

## Australian Indigenous languages

Like every human language, Australian Indigenous languages are fully capable of expressing every human concept and emotion. Each language develops to facilitate different needs required by its speakers, their tradition and culture, and the environment they live in. For example, hunter-gatherers' languages may develop rich vocabularies to do with hunting and gathering activities, while agricultural peoples' languages may develop rich vocabularies to do with farming. A language may lack a feature found in English, but this does not mean that the language is primitive. Many Australian Indigenous languages do not have extensive numerals as they did not need them.<sup>1</sup> This, however, does not make the languages, or their speakers, primitive or inferior to English or other languages.

Unless otherwise referenced, the spelling of Indigenous language names in this article, is as in the Australian Indigenous Languages Database (AUSTLANG), October 2009.

## The diversity of Australian Indigenous languages: not one language!

There are numerous Australian Indigenous languages, but when colonists first arrived, they thought one language was spoken across Australia. The word 'kangaroo' recorded by Captain Cook's party in 1770, comes from the Guugu Yimidhirr language spoken around Cooktown in Queensland. Having learned this word, colonists who arrived later, could not understand why Aboriginal people from the Sydney area did not understand this word, while Aboriginal people from the Sydney area

thought this word 'kangaroo' was from the colonists own language, English! The word 'kangaroo' is used these days as a generic term in English, but in Guugu Yimidhirr, 'gangurru' refers to one particular species of kangaroo.

Dialects are different varieties of the same language, where speakers of dialects of the same language can more or less understand each other. For example, Australian English is a dialect of the English language. On the other hand, speakers of different languages, for example, English and French, cannot understand each other. According to the National Indigenous Languages Survey (NILS) Report 2005, at the time the Australian continent was colonised, there were about 250 different Indigenous languages.

Most Australian Indigenous languages have several dialects. Although linguists make a distinction between languages and dialects, thus describing one variety being a dialect of a language, speakers themselves may not like to think that they speak a dialect, because they seek to mark social or political divisions that distinguish themselves from others. Some people think that the word 'dialect' has a connotation of 'sub-group'. Rather, they may say that they speak their own language. Therefore, it is difficult to quantify exactly how many Australian Indigenous languages there are, especially when many of them are no longer spoken.<sup>2</sup>

## The origin of and relationships between Australian Indigenous languages

Each Australian Indigenous language is associated with an area of land and has a deep spiritual significance – these languages came to the country and ancestral people of Indigenous

Australians in a distant age that some call 'the Dreamtime'. It is through their own languages, that Indigenous people maintain their connection with their ancestors, land, law and culture.

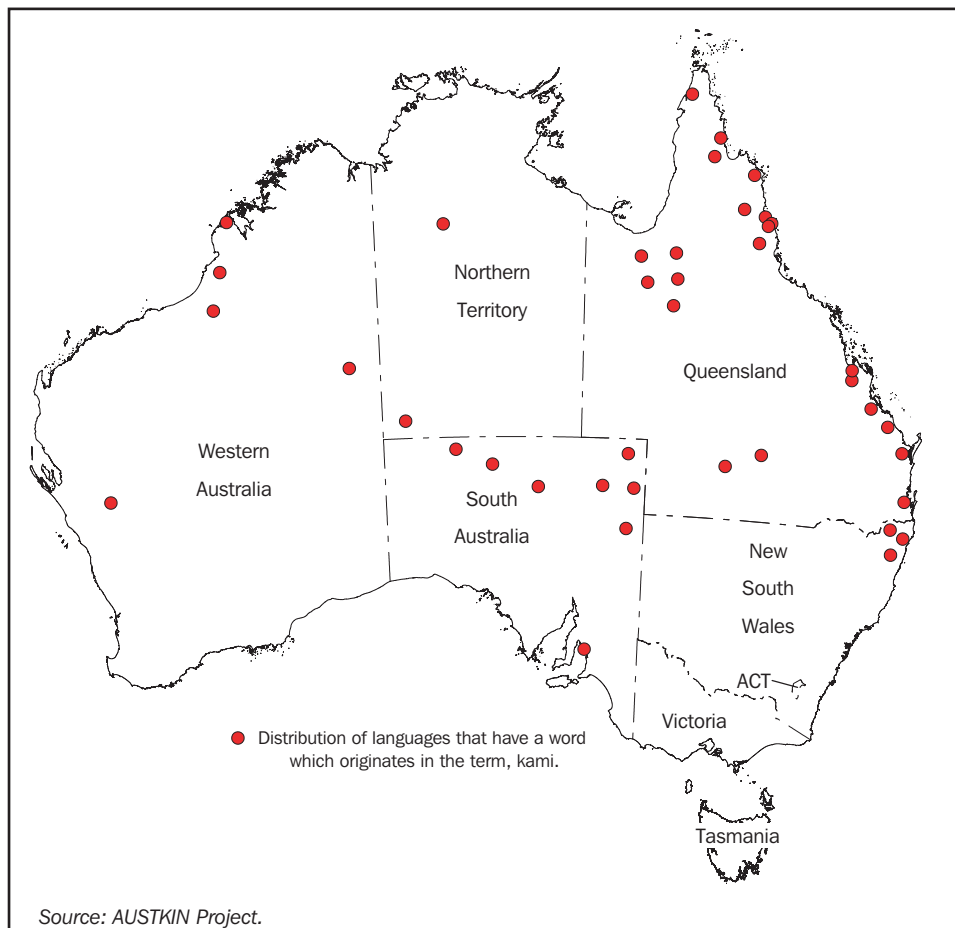
When people first came to Australia over 40,000 years ago, the continent included New Guinea and Tasmania in a super-continent called Sahul. The land bridge connecting Australia to New Guinea only submerged about 8,000 years ago. Yet the languages of Australia, except for one, Meriam Mir, spoken in parts of the Torres Strait, bear little resemblance to the languages of New Guinea.<sup>3</sup>

Australian Indigenous languages can be divided into between ten to twenty-four language

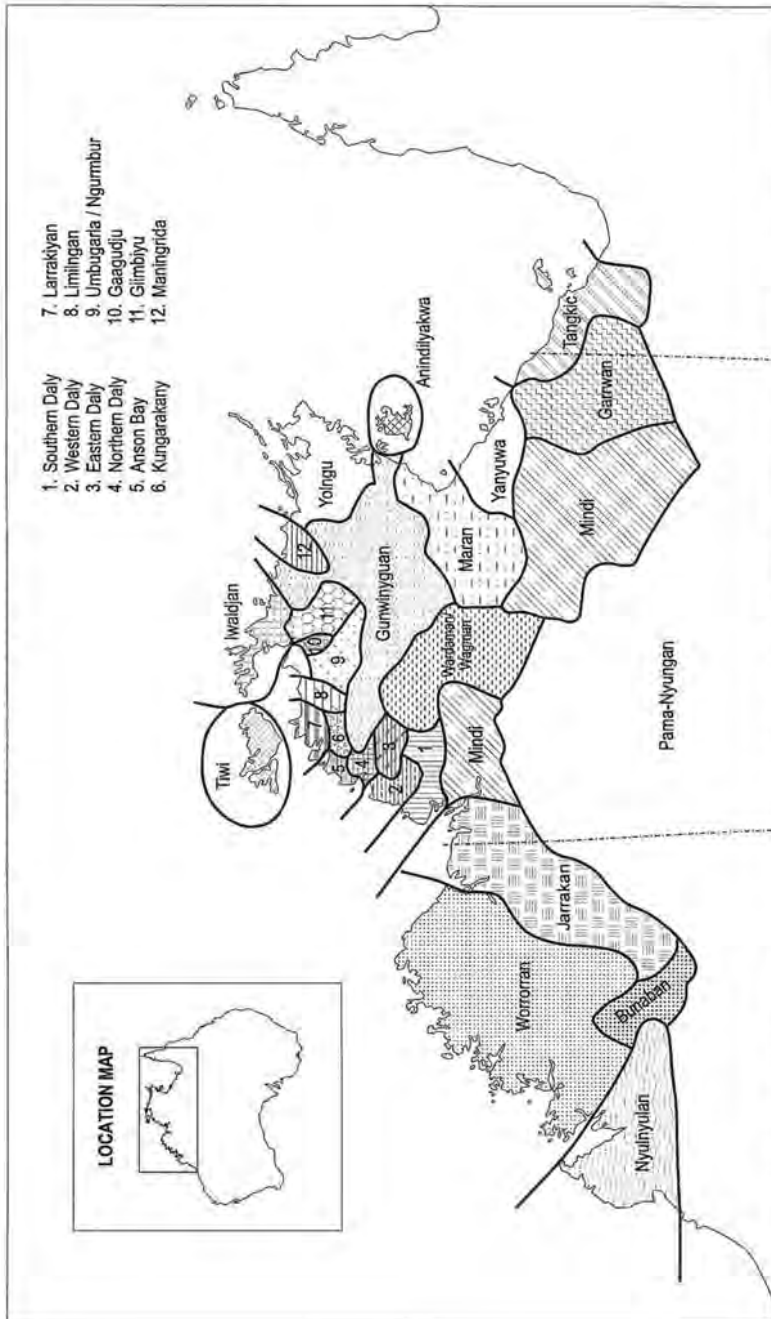
families.<sup>4</sup> One language family, the Pama-Nyungan language family, covers most of the mainland. The term 'Pama-Nyungan' comes from the word for 'man' that in some Cape York languages is pama and is nyunga in the southwest of Australia. Languages in this family share some grammatical features and words, and they are considered to have the same origin. Map 1 shows some of the Pama-Nyungan languages that have a word which originates in the form kami. This word originally meant 'mother's mother', but in some languages the meaning has changed to other meanings such as 'father's father'.

As part of an ongoing project to trace the changes in kinship and social organisation in Indigenous Australia, using evidence from

### 1. INDIGENOUS LANGUAGES THAT HAVE A WORD WHICH ORIGINATES IN THE FORM, 'KAMI'



## 2. NON-PAMA-NYUNGAN LANGUAGE FAMILIES



Non-Pama-Nyungan languages are represented by shaded language families and Pama-Nyungan languages are represented by unshaded language families including Yolngu and Yanyuwa.

Source: Evans, Nicholas 2003, *The non-Pama-Nyungan languages of northern Australia: comparative studies of the continents most linguistically complex region.*

language, the AUSTKIN project is developing a database of kinship terms in Australian Indigenous languages. The kinship term database currently contains data from a limited number of languages. Accordingly, the map does not show all languages that have a word that originates in *kami*.

Most of the other language families are found in the top end of the Northern Territory and the Kimberley. These languages are grouped together as non-Pama-Nyungan languages by some linguists, as shown in map 2.

Meriam Mir is grouped together with Papuan languages from New Guinea.

### Creoles: Kriol and Yumplatok

In addition to traditional Indigenous languages, creoles are also spoken by Indigenous people of northern Australia. A creole is a language that develops from language contact, in the case of Australia, English and Australian Indigenous languages, and shows features of contact languages.

Two creole languages spoken by Indigenous Australians have appeared since colonisation. 'Kriol' is spoken in a belt across Northern Australia from the Kimberley through the Katherine region. 'Yumplatok', also called 'Torres Strait Creole' or 'Brokan', is spoken in the Torres Strait and some communities of Cape York Peninsula. These two creoles are spoken as the first language of many Indigenous Australians in northern Australia and are the most commonly spoken languages other than English, by Indigenous people. The 2006 census reported 5,769 and 3,869 speakers of Yumplatok and Kriol respectively. Linguists working on Kriol, however, estimate as many as 20,000 to 30,000 Indigenous Australians speak Kriol as their first-language. It is considered so widely spoken as a first language, that in 2007, the Bible was published in Kriol, as the *Holi Baibul*. This is the first complete translation of the Bible (both the Old and New Testaments) into an Australian Indigenous language (although a non-traditional Indigenous language).

Although most Kriol words come from English, meanings can differ greatly and the way sentences are made is very different. For example, the English word 'we' does not

indicate if the listener is included. Most Aboriginal languages distinguish between 'we' meaning 'me and you, the listener' and 'we' meaning 'me and someone else, not you the listener'. Kriol makes this distinction too – the first 'we' is *yummi*, the second 'we' is *mindubala* or *melabat*.<sup>5</sup>

## Indigenous language study

### Early work

At the time of colonisation, none of the Indigenous languages of Australia had a writing system. Stories and knowledge were handed down orally. Australian Indigenous language study has a relatively short history – it did not start until some colonists began documenting languages. In the early days of Indigenous language study, non-Indigenous people conducted most of the work. Not all early documenters of languages were trained researchers. Colonial officers, missionaries and squatters were among the early documenters of Indigenous languages. Edward Micklethwaite Curr, a sheep farmer from Victoria, circulated a list of 125 English words among policemen, magistrates, and squatters across Australia, and asked them to provide Indigenous equivalents. The result was a four-volume work, *The Australian Race* (1886) that contains 300 vocabularies of Indigenous languages.

Naturally, when documentation was conducted by untrained researchers, the quality of documentation varied. There was no standard writing system for Indigenous languages, and each person was writing Indigenous languages in a different way, reflecting the documenter's language background, such as English or German. Thus, the same word may be spelled in a different way. For example, the word *bagaranj* 'heat, day, light, sun' of the Dhurga language from the South coast of New South Wales has been documented as *bug'garañ* by Mathews a surveyor; *Bug.green* by Larmer, another surveyor; and *būgūrin* by Hale, an anthropologist/linguist. Such inconsistencies make it difficult for the current generation of Indigenous people or researchers to work out how the word used to be pronounced, if no sound recording of the word was made.

Many Indigenous languages ceased to be spoken before they were properly

documented. In the earliest colonised parts of Australia, there are some languages for which there is very little documentation. For example, according to Wafer and Lissarrague 2008, there are only a few hundred known words recorded in the Ngunawal and Ngarigu languages spoken around the Canberra region.

Past documentation of languages now supports language revitalisation and reclamation efforts by communities. This is especially important when a language has not been spoken for several generations.

### **Recent work**

The first university Department of Linguistics was founded in 1965 at Monash University in Australia and since then many linguists have graduated from Australian universities. Some of these linguists have been documenting and studying Australian Indigenous languages. In 1974, the School of Australian Linguistics was founded within the Darwin Community College. This School aimed to train Indigenous people so that they can document and study their own languages as well as produce teaching and language resources. The School was absorbed into the Batchelor Institute of Indigenous Tertiary Education (then Batchelor College) in 1989, and today the Batchelor Institute still offers training on language work.

Linguists produced a number of grammars and dictionaries of Australian Indigenous languages, but many Indigenous languages are still not well documented. Less than ninety languages have an extensive grammar while less than sixty languages have an extensive dictionary. 'Extensive' as we use it here, means a grammar or a dictionary of over two hundred pages. Compared to grammars and dictionaries of languages like English or French, this provides little information about each language. More work needs to be done on each of these documented, little documented, and undocumented languages. Documentation work is urgently required as most Indigenous languages are declining and not fully spoken anymore.

## **State of Indigenous languages**

### **Language endangerment**

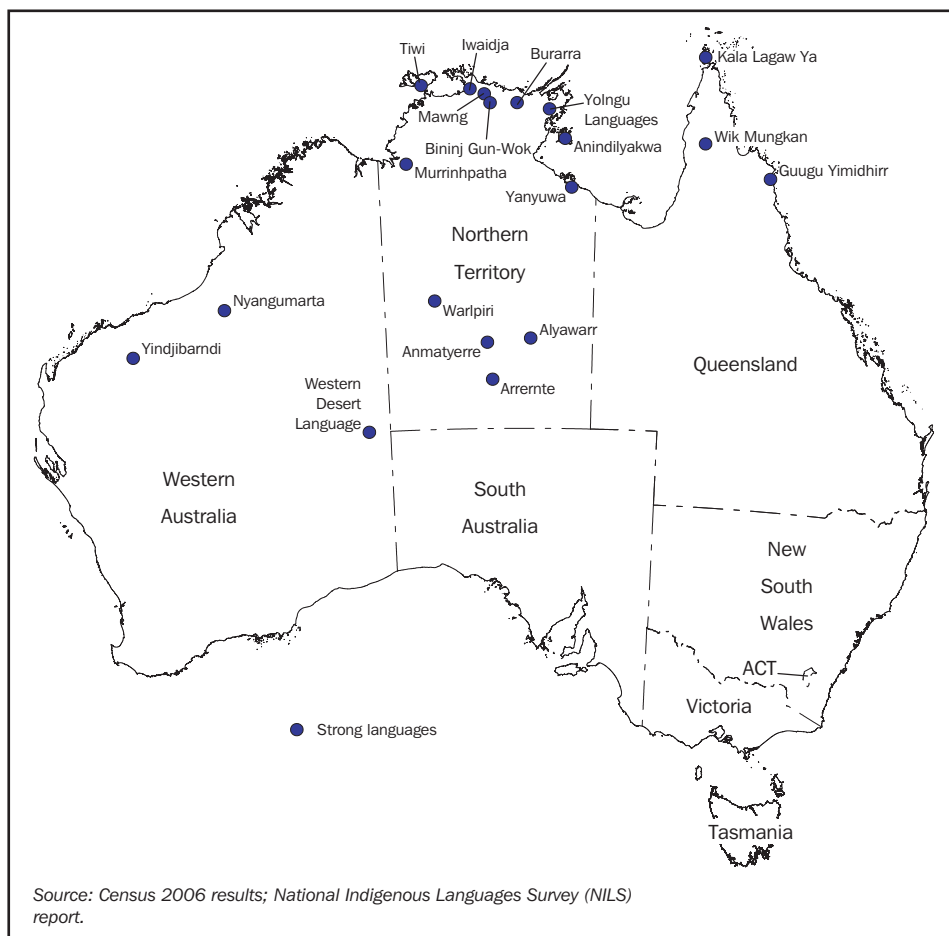
It is estimated that more than a half of over 6,000 world languages spoken today will be replaced by dominant languages. This means that more than 3,000 languages will no longer be spoken by the end of the 21st century. The Atlas of the World's Languages in Danger (2009) shows that languages in danger of becoming extinct are found in almost every part of the world. National Geographic's Enduring Voice Project on endangered languages of the world identifies five Language Hotspots, areas where many languages are facing near extinction. These Hotspots occur in Australia, Central and Eastern Siberia and North and South America.

Each of the languages facing extinction embodies cultural, traditional and ecological knowledge unique to its speakers. Thus, when a language becomes extinct, the means to express such knowledge will also be lost. The loss of a language may result in the loss of human knowledge about the world we live in. One may think that such knowledge can still be expressed in another language, for example, in English. But this is not entirely true as English may lack the vocabulary, or some complex meaning expressed in the original language becomes lost in translation. For example, Australian Indigenous words for 'law' encompass more than what the English word for 'law' means. They also encompass the way one should behave in relation to the land, ancestors, and one's kin.

### **Endangerment measurement**

In order to demonstrate the extent of language endangerment, UNESCO developed measurement criteria for language vitality and endangerment. This consists of nine criteria. Based on these nine criteria, the *NILS Report 2005* proposed ten language endangerment indicators for Australian Indigenous languages. The most important indicator is 'intergenerational language transmission'. This indicator measures to what extent language is transmitted from older to younger generations. Naturally, if a language is not transmitted to

### 3. STRONG INDIGENOUS LANGUAGES



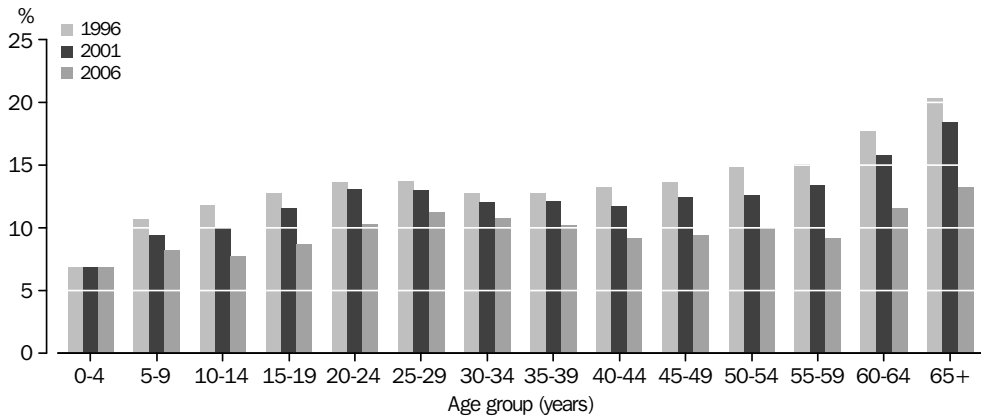
younger generations, the language can become extinct when older generations with the knowledge of the language all die. Another important indicator is the number of speakers in proportion to the total population of people who identify with the language. Language is one of the most important means of self-identification, and those who no longer speak their own language may still identify themselves with their language. The number of speakers itself is not as important as the proportion. In the case of Australia, some Indigenous languages were only ever spoken by a small number of speakers, perhaps 50 to 100 people. A small number of speakers in relation to a small number of people who identify with the language may not mean that

the language is endangered. In reality, however, such a language is often endangered.

#### Language endangerment in Australia

Since colonisation, Australian Indigenous languages have seen decline, and many of them have been replaced by English or creoles. According to the NILS report, among the original 250 or so languages, only about 145 Indigenous languages are still spoken to some degree. Many languages are not fully spoken by anybody, and only some words and phrases are remembered. Less than 20 languages are considered to be strong in the sense that they are still spoken by all generations.

#### 4. INDIGENOUS LANGUAGES SPOKEN (a)



(a) by Indigenous persons

Source: *Census of Population and Housing*.

The majority of strong languages are spoken in remote areas of Western Australia, the Northern Territory and Queensland, where it was difficult for colonists to reach and establish settlements. This area coincides with the National Geographic's Language Hotspot where severely endangered languages are found. In the rest of the country, south-eastern Australia, the majority of Indigenous languages, especially languages along the coast, are no longer spoken or they once ceased to be spoken and they are currently under revitalisation, as shown in map 3.

Indigenous language endangerment in Australia is clearly illustrated by the decline of Indigenous language speakers among all age groups of the Indigenous population aged 5 years and over. At the 1996 Census, 12.1% of the Indigenous population were Indigenous language speakers, declining to 11.1% at 2001 and 9.2 % at 2006, as shown in graph 4.

Although the above depicts a gloomy picture of Australian Indigenous languages, there is some good news. Some languages have had success in their revitalisation programs and as a result the number of speakers has increased. For example, the 2006 census shows that there were 34 Kaurna and 159 Ngarrindjeri speakers, while previously figures for these languages were not available because it was considered that the languages were no longer spoken.

### Language documentation and preservation

In Australia, people, both Indigenous and non-Indigenous, have been trying to maintain surviving languages and also revive languages that have not been spoken for many years. There are three categories of programs on Indigenous languages across Australia: research programs; community language programs; and school language programs.

### Research programs

Researchers, mainly linguists and some anthropologists, have been documenting and analysing Indigenous languages. They visit Indigenous communities, make recordings of Indigenous languages, transcribe recordings, analyse the transcription, write a grammar and create a word list or a dictionary. The whole process takes a long time and cannot be done without collaboration with Indigenous people. Some languages have only a few older speakers left, and it is urgently required to record these languages while there are remaining speakers. Where languages are no longer spoken, researchers may analyse older, pre-existing documentation. Researchers primarily publish results of their research in academic domains, but some researchers also produce material for Indigenous people to use in their language revitalisation and maintenance. In whatever formats and forums they are produced, results



of research contribute not only to the maintenance or revitalisation of Indigenous languages, but also to our understanding about language – the more we understand each language in the world, the more we understand the structure and function of human language.

### **Community language programs**

While researchers study Indigenous languages often for academic purposes, Indigenous people are most often motivated to work towards language revitalisation and maintenance. Where languages have become extinct, Indigenous people often do not like to think that their languages are dead. Rather they often speak of their languages as 'sleeping' or 'resting'. Indigenous people are trying to revive their languages often from the little historical documentation available. For example, before it went to sleep, the Awabakal language from the Newcastle area was documented by an English missionary, Lancelot Edward Threlkeld, in the early 19th century. Today, the Awabakal people have been trying to revive and maintain the Awabakal language using this resource, but there are no sound recordings of this language and it is near impossible to find out how Awabakal words used to be pronounced. The current generation has to work out how they might have been pronounced from the way words are spelled by Threlkeld and from information on neighbouring languages.

Where languages are still strong, Indigenous people run language maintenance and documentation programs. Sometimes language programs are combined with other kinds of activities. For example, the Thalanyji people in the Pilbara region, with assistance from a community linguist, Eleanora Deak, documented their knowledge about flora in the Thalanyji language and published a plant book *Ngambunyarri* (2007 Hayes and Hayes). The book has Thalanyji, English and scientific names of each plant with information about the plant in both Thalanyji and English, accompanied by pictures. The project delivered benefits other than the documentation of language and traditional knowledge<sup>6</sup>: two Thalanyji speakers increased their recording and computing skills as well as confidence in written and spoken Thalanyji. The project also increased pride in the Indigenous community and raised awareness of the Thalanyji language,

knowledge and culture among non-Indigenous people.

### **Lakun Ngarrindjeri Thunggari: weaving the Ngarrindjeri language back to health**

The following is an edited excerpt of the abstract of a prize-winning presentation given by Eileen McHughes, Phyllis Williams, Verna Koolmatrie, and Mary-Anne Gale at the AIATSIS National Indigenous Studies Conference held in Canberra, 29 September – 1 October 2009.

Unlike many Aboriginal languages of southern Australia, the Ngarrindjeri language of the Lower Murray, Lakes and Coorong region never went to sleep. Ngarrindjeri people have always retained a healthy set of around four hundred words which are readily used in their everyday English speech. Over the last few years, however, the Ngarrindjeri language has started to take on new forms and functions. People such as the respected Elder Auntie Eileen McHughes receive regular requests to give speeches solely in Ngarrindjeri. Similarly, the Health Worker Phyllis Williams works alongside others in the community to translate old hymns and favourite songs to be performed and sung in the Ngarrindjeri language at special cultural events, while Verna Koolmatrie teaches the language in the Raukakan School. Ngarrindjeri people are well known for their skills as weavers, and just as Eileen, Phyllis and Verna weave beautifully intricate baskets and mats, they are now weaving new and creative sentences in the Ngarrindjeri language. This emerging skill of weaving carefully constructed sentences for specific purposes is only possible today because of the past efforts of Elders, who worked alongside missionaries and ethnographers to document their language in various forms. The last fluent speakers of the Ngarrindjeri language passed away in the late 1960s, but by accessing their recordings (held at AIATSIS), and by re-interpreting the written records of others, the Ngarrindjeri language is once again being spoken in full sentences.

## School language programs

Across Australia, some schools offer Indigenous language programs. Out of 250 Indigenous languages, over 80 languages were taught to Indigenous and non-Indigenous students in 260 schools in 2006. This constituted 2.7% of the total number of schools in Australia, 11.3% of Indigenous students and 0.3% of non-Indigenous students involved in some sort of Indigenous language program.<sup>7</sup> As shown in graph 5, Indigenous language programs taught at school are divided into four types:

- first language maintenance (28 per cent of programs)
- language revival (50 per cent of programs)
- second language learning (12 per cent of programs)
- language awareness (10 per cent of programs)

Only first language maintenance programs are aimed at students whose first languages are Indigenous languages. Others are for Indigenous students who have some knowledge of their languages or Indigenous or non-Indigenous students who do not have any knowledge of Indigenous languages. The first language maintenance programs include bilingual or two-way programs, although the number of schools which offer such a program is very few.

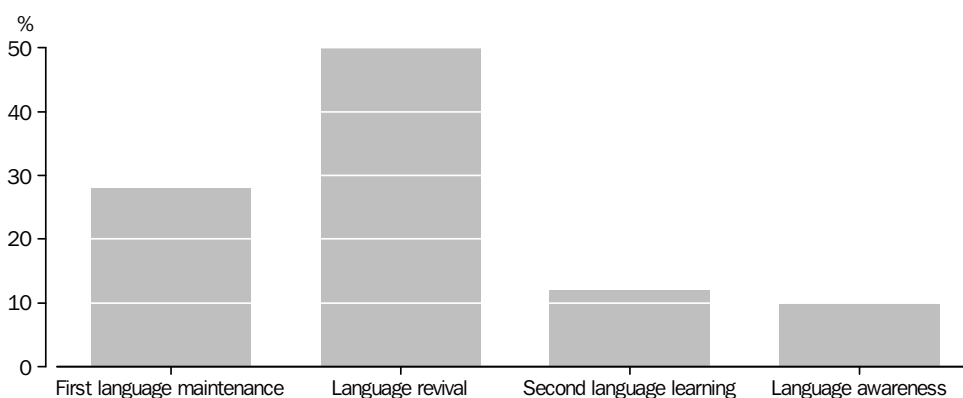
## Indigenous languages in everyday life

Today, Indigenous languages are integrated into everyday Australian life. Many Indigenous words are borrowed into Australian English. Most of the borrowed words are nouns. Mulga, bogong, dingo, kookaburra, barrumandi, yabby, conkerberry, jackeroo, yakka, and billabong are all words borrowed into Australian English from Indigenous languages.

Some streets in the Australian Capital Territory are named after Indigenous language names: Bindubi, Bandjalong, Arabana, Larakia, Alawa, Dalabon and so on. Many other place names in Australia come from Indigenous language words or place names, while many Indigenous place names are not in use publicly and have been replaced by English names. Some Indigenous people are asking for a dual place-naming system, in English and in a local Indigenous language. The Grampians in Victoria (named after a region in Scotland) has an Indigenous name, *Gariwerd*, and this name is now used alongside 'The Grampians'.

Some non-Indigenous people are interested in using Indigenous words for naming their babies, properties, companies, and so on, out

5. TYPES OF INDIGENOUS LANGUAGE PROGRAMS IN SCHOOLS (a)



(a) Type of language program as per cent of total Indigenous Language Programs.

Source: Australian Council for Educational Research, *Indigenous Languages Programmes in Australian Schools – A Way Forward 2008*.

of their interest in Indigenous culture or as an act of showing respect to Indigenous people. However, some Indigenous people are very sensitive about the use of Indigenous words by non-Indigenous people, and so it is best for non-Indigenous people to consult Indigenous people before they use Indigenous words for any purpose.

Throughout Australia, it is becoming common practice to acknowledge traditional owners at formal occasions, with an expression such as "I would like to acknowledge the traditional owners, past and present, of this place we are meeting in today". In return, some Indigenous groups have devised welcome expressions.

Recently, with the government's apology to the Stolen Generations, ecological issues, and native title claims and determinations, Australians are becoming more aware of Indigenous languages, cultures and knowledge. Australian Indigenous languages, cultures and knowledge are a unique part of Australia's heritage. They are still alive in this land and are not things to be considered as museum pieces or historical artefacts. It is up to the current generation of Australians, Indigenous and non-Indigenous, to decide whether this heritage unique to Australia will survive in this world.



Cartoon by Samanti de Silva

## The bilingual program at Areyonga School

This is a summary of the presentation, the Bilingual Program at Areyonga School, given at the symposium, *Bilingual Education in the Northern Territory: principles, policy and practice*, held in Canberra on 26 June 2009. A full paper version of the presentation, *Areyonga Two-Way School: What we do and why we do it*, is to be published by AIATSIS.

Areyonga School, in a remote community 220kms west of Alice Springs, runs a Step Model bilingual program. As children from Areyonga generally do not speak English when they begin school, English is introduced gradually. They begin by learning to speak and understand English by partaking in a variety of activities. English books are read to them; they discuss the book, role-play the story and use the language from the book in various contexts.

At the same time, they are taught literacy and numeracy through their first language, Pitjantjatjara. This approach is effective because children are far more engaged in lessons that are conducted in a language they understand and using topics that are familiar to them. They are able to link the spoken words they know to the written symbols, rather than trying to link spoken English words (which they do not know) to symbols which they do not know. It is very difficult to understand new concepts through a language the children do not understand.

By Year 4, the children have a sufficient grasp of oral English to start independently writing in it. As they have acquired literacy in Pitjantjatjara, they are able to transfer these literacy skills over to English. From Year 4 onwards the focus shifts to English. Children at Areyonga who regularly attend school successfully attain literacy in both languages.



Welcome sign at the boundary of Wathaurong Country.

### Kaurna welcome expression

The following is a welcome in Kaurna Warra, the language of the Kaurna people of the Adelaide Plains.<sup>8</sup>

*Ngangkinna, meyunna! Na marni?*

*Ngai narri \_\_\_\_\_.*

*Martuityangga Kaurna meyunna, ngai wanggandi "Marni naa budni Kaurna yertaanna."*

*Ngaityo yakkanandalya, yungandalya.*

### Translation

Ladies and gentlemen, are you (all) good?  
(i.e. hello)

My name is \_\_\_\_\_.

On behalf of the Kaurna people I say "It's good that you (all) came to Kaurna country"

(i.e. welcome)

My dear sister(s) (and) brother(s). (i.e. thank you)

The NILS report provides a number of recommendations on Indigenous languages including: the establishment of regional and national Indigenous language centres; and Indigenous language programs based on the Master and Apprentice scheme and Language Nests which have seen success overseas. It also recommends development of a National Indigenous Languages Policy. Drawing on these recommendations in the NILS report and other past reports and recommendations on Indigenous languages, the Australian Government has committed to addressing the serious problem of language loss in Indigenous communities. In August 2009 the government announced its approach to the preservation of Indigenous languages.<sup>9</sup> This approach is aimed at keeping Indigenous languages strong and alive, and calls for improved coordination

between Indigenous organisations involved in language programs, government departments, research organisations, collecting institutions, and educational bodies.

## End notes

1. For more information and references on Australian Indigenous mathematics see Australian Institute of Aboriginal and Torres Strait Islander Studies web site.  
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6. Although medicinal information about plants was collected, this information is not included in the published book at the request of the Thalanyji people.
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# Girl Guides – leading the way for Australian girls and young women

*This article is based on information and images provided by Girl Guides Australia with the materials being sourced and coordinated by Fiona Krautil, National Executive Officer, Girl Guides Australia.*

In 2010 Girl Guides Australia is celebrating '100 years of changing lives'. One hundred years of enabling girls and young women to grow into confident, self respecting, responsible community members – young women who are empowered to become the community leaders of tomorrow, who care about the environment and the people of their local and global communities, and are willing to go that extra mile to serve these communities. Girl Guides Australia is a volunteer led organisation, with volunteers operating at all levels, from the Chief Commissioner at the head of the organisation to the Leaders and Guide supporters at the local level.

In recognition of Guiding's positive contribution to Australian society, in September 2009 the Prime Minister Kevin Rudd and Minister for the Status for Women, Tanya Plibersek, announced that 2010 will be the Australian Year of the Girl Guide, in association with the organisation's centenary.

Since Guiding's first advocates confronted Lord Baden-Powell at Crystal Palace in 1909 demanding to join the Scouting movement, millions of girls and young women throughout the world have enjoyed exciting and fun filled

programs delivered in a safe, supportive 'girls only' space that has inspired them to develop their individual leadership and life skills and provided them with a platform to have their voices heard to make the world a better place.

The WAGGGS (World Association of Girl Guides and Girl Scouts) Global Action Theme (GAT) has girls worldwide saying "together we can change our world". As we celebrate the Centenary of Guiding worldwide we recognise that Guiding has changed the lives of millions of girls and young women and their communities for 100 years.

Among the many prominent women who have made the Guide Promise is Quentin Bryce, Australia's first female Governor-General. 'I was a Brownie and what I loved most about those times were the special games we played and the little rituals we took part in. Being a Guide means learning to care for others, doing the best they can and, of course, having fun in the bush', she says.

In 2010, this global force of 10 million girls and women in 145 countries is still doing its best, from tackling issues of poverty and literacy in developing nations to helping out at the local



*Centenary logo.*

animal shelter and handing out water to our Diggers at Anzac Day. In Australia, over one million Australians have been or are Girl Guides.

## History of Guiding – Celebrating our past

Guiding sprang from the Scouting movement, so our history began early in the 1900s with Lord Baden-Powell – B-P as he became known – developing the concept of Scouting during his days as a British soldier in India and Africa. He successfully applied these methods to boys at an experimental camp on Brownsea Island in England in 1907.

### 1909 Girls speak out

The first Scout rally at Crystal Palace in London was the starting point for Guiding. A group of girls stood behind the Boy Scouts at the rally. The girls wore the long skirts required at the time but they also wore khaki shirts, scout hats and scarves and leather belts. They demanded the right to be recognised as girl scouts and to be allowed to follow the same program as the boys – despite prevailing attitudes to girls. ‘If a

girl is not allowed to run, or even hurry, to swim, ride a bike, or raise her arms above her head, how can she become a Scout?’, said B-P in *The Scout Gazette*.

But by the end of the year he had published a pamphlet *The Aim of Scouting for Boys*, with a suggestion for a similar scheme of character training for girls ‘... with details more suited to the sex.’ His sister Agnes agreed to help run a girls’ movement, and together they wrote *A Scheme for Girls* and *How girls can help to build up the empire* was published – the first Guide handbook.

### Why ‘Guides’?

In India, B-P met up with a group of soldiers called guides whom he much admired. They played a reconnaissance role and were physically fit, enterprising, self-disciplined and cheerful, qualities still emphasised by the Guide program today. B-P also named the girls Guides for the fit, courageous mountaineering guides of Switzerland. ‘The term “Guides” was intended to give an idea of romance and adventure.’ B-P



Her Excellency, Ms. Quentin Bryce, Governor-General of Australia and Patron of Girl Guides Australia with young Guiding women.



## 1910 Girl Guides begins

In May of that year girls were invited to register as Girl Guides and the Girl Guides Association officially began operating in the UK, with Agnes Baden-Powell acting as President. Guiding swept across the world. In Australia the movement began under various names in different States, for example the Australian League of Girl Aids in New South Wales, the Peace Scouts in Tasmania and the Red Cross Girl Aids in Victoria. Guiding developed independently in each State over the next few years until its official start in 1911. By 1945 Guiding was active in every state and territory around Australia.

## 1912 Appearance of Olave

B-P married Olave St Clair Soames, who joined him in leading Scouting and Guiding. Lord and Lady B-P shared a birthday, 22 February, and this is celebrated annually as World Thinking Day. Girl Guides and Girl Scouts worldwide reflect on, and raise funds for, fellow members less fortunate than themselves.

Other key events in a century of Guiding include:

- 1926 Federal Council of the Girl Guides Associations of Australia formed.
- 1928 World Association of Girl Guides and Girl Scouts formed – Australia as founding member.
- 1931 First visit of Lord and Lady B-P to Australia.
- 1939 World War II declared. Guides around the world assisted with the war effort.
- 1943 Australian branch of Guide International Service formed with 24 Australian volunteers giving service in Malaya, Germany and Holland. Other Guide members in Australia raised funds and sourced supplies, dispatching them regularly to needy areas. The Australian team in Malaya vaccinated thousands of people against smallpox, preventing an epidemic.
- 1947 Australian Guides donate the ingredients for the Queen's wedding cake.
- 1951 First international Guide camp in Australia.

- 1958 Ice Cream for the Chief Fund established – every Guide asked to donate the cost of an ice cream to a fund for the Chief.
- 1960 Special postage stamp to celebrate 50 years of Guiding.
- 1971 First international training for trainers hosted by Australia.
- 1975 First Australian handbooks for girls published, replacing British based handbooks.
- 1986 Bangladesh Australia Child Health Project established. Teams assist with child health education, improving sanitation and promoting health and hygiene among villagers in Bangladesh.
- 1996 Australian Guide Program introduced – first program designed specifically for Australian Guides.
- 1996 Australian Adult Leadership Program launched – national competency-based leadership development program for adult members.
- 2000 New Recognition System – optional challenge and award system for girls – introduced to complement the Australian Guide Program.
- 2000 Millennium camp held in Queensland with over 2000 Guides and Leaders celebrating the new millennium.
- 2005 Guiding Overseas Linked with Development Project established – assisting with implementation of life skills program planning for both Leaders and youth members in Thailand.
- 2010 Centenary of Girl Guides and Girl Scouts; declared Year of the Girl Guide in Australia.

*'The Guide Movement came simply because it was needed by the children. They practically invented it because they took hold of it and brought it to where it is.'* Lady B-P

## Guiding in Australia today – Living the present

Today's Guiding skills may have moved on but the principles endure and are as relevant as ever according to Lynne Price, Girl Guides Australia's Chief Commissioner, 'Guiding activities are driven by the girls so they reflect

the times but they're underpinned by lasting values that empower young women and foster leadership and a strong sense of service.' The girl is the central focus of the Program.

The Australian Guide Program (AGP) encourages the girl to develop herself in the areas of physical development, practical skills, and in relationships with people.

- Physical – participating actively; focussing on the environment and the outdoors.
- People – making friends and developing long-lasting friendships; developing an understanding and respect for others.
- Practical – learning by doing; learning everyday living skills that can be integrated in all areas of life.
- Self – development and appreciation of the individual; gaining personal growth through challenging the girl as an individual.

The seven fundamental areas of Guiding form the basis of the Program upon which Unit meetings are developed and implemented.

- Keeping the Promise and Law is our underlying code of living.
- Enjoying the outdoors offers active adventure and awareness of the environment.
- Giving service encourages a sense of community.
- Exploring world Guiding builds peace and understanding.
- Sharing in Guiding traditions gives a sense of history and belonging.
- Experiencing leadership development improves skills for life.
- Participating in the Patrol System develops teamwork skills.

The philosophy of the AGP is based on the importance of the process used in working towards an outcome, rather than on the activity itself. The AGP process involves five steps: discovering needs and options, deciding goals, planning activities, doing activities, evaluating. When Guides plan their own Unit meetings, they gain confidence in choosing activities to suit their needs and learn the important skill of self-determination.



*Guides having fun in the outdoors.*

A program, the Olave Program, specifically designed for 18 to 30 year olds, provides opportunities for participants to challenge themselves at a personal level through a flexible network, with a focus on service. The Olave Program enables young women to further develop as confident, self-respecting responsible global community members.

Girl Guides Australia welcomes youth members from the age of five years up to eighteen years, of whom around 77% are aged between five and twelve. Adult members are women from the age of eighteen years. As of the 2008 Guide Census, Girl Guides Australia had 1790 Guide Units with 28,362 members across Australia.

Girl Guides Australia is an inclusive organisation, with the Program also catering for girls and Leaders with special needs (through regular or special needs Units) and for Lone Guides – those whose distance from Guide Units, state of health or family circumstances mean that they cannot attend regular Guide meetings. Instead they receive resource material by Internet or mail and join with other Guides at camps and award ceremonies.

A dedicated group of female adult volunteers (called Leaders) are trained to develop Guides in all facets of the AGP. The Leader is the facilitator and the AGP provides a framework to allow for individual interpretation, ensuring that a range of learning styles and intelligences are catered for. Support is provided to all volunteers with each Leader receiving a mentor (or Guiding Partner) and training from other appropriately qualified volunteers with a wealth of experience.

The Australian Adult Leadership program provides Leaders and other members with leadership skills and opportunities for further development. Members have the option of working towards nationally accredited workplace qualifications in leadership and frontline management.

'Recent research from the United Kingdom confirms what we have always suspected – that girls involved with Guiding stand out among their peers in their commitment to volunteering, community action and their responsibilities as world citizens.'<sup>1</sup>

## "Guides Say" Research<sup>2</sup>

In 2007, Girl Guides Australia conducted a national survey of Guides aged between 5 and 17 years old, to identify the issues affecting girls and young women at a global, national and local level. The spectrum of age, geographical location, cultural background and personal circumstances, provided a rich understanding of both the similarities and differences of young girls across all walks of life in Australia, giving the survey's findings depth and power. A total of 4,500 girls participated from across all Australian States.

The majority of Guides who responded were from metropolitan areas (53%), with 24% in regional areas and 23% in rural areas. At a global level, all areas were most concerned with the environment, global warming and poverty while at a local level the environment and addictions were ranked highest. Water was also ranked in the top four for regional and rural areas.

The most variety in responses occurred at a local level, where Guides raised issues specific to their area.

## Young Women's Forum 2009 "Taking the Lead through Advocacy"

Fifty Australian Guides and two New Zealand Guides aged 14-30 years participated at this exciting new event held in January 2009 in Sydney, hosted by Girl Guides Australia to develop girls and young women's advocacy skills. The training centred on the 2009 WAGGGS messages which have been aligned to the United Nations' Millennium Development Goals (MDG):

- girls worldwide say "together we can end extreme poverty and hunger"
- girls worldwide say "education opens doors for all girls and boys"
- girls worldwide say "empowering girls will change our world"
- girls worldwide say "together we can save children's lives"
- girls worldwide say "every mother's life and health is precious"
- girls worldwide say "we can stop the spread of AIDS, malaria and other diseases"

- girls worldwide say “we can save our planet”
- girls worldwide say “we can create peace through partnerships”

A highlight was the panel of speakers from Oxfam, World Vision, Clean up Australia, UNIFEM, UNICEF, Medecins sans Frontieres, Mrs Judith Poole, Headmistress of Abbotsleigh School, and Dr Gabrielle Casper, Past President of Medical Women’s International Association who came and shared their expertise on the Millennium Development Goals and guest speaker Clary Castrission, the inspirational founder of 40K Home Foundation with its focus on Australian youth eradicating poverty by partnering education projects in the developing world.

### **International advocacy and Guiding**

Girl Guides Australia is dedicated to advocating on the issues identified as important to our members and to providing the skills and the opportunities for them to speak out on these issues – whether they are matters of concern at a global level, in their communities or something that affects them in Guiding.

Four young Australian women represented the country and Guiding at the Copenhagen Climate Change Summit (COP 15) in Denmark in December 2009. Allison Hooper, 24 years, Petina Blackwell, 25 years, and Nellie Mair, 25 years, joined 19 young women from around the world at COP15 to form the WAGGGS youth delegation in support of environmental protection. Linden Edgell, an Australian who is Deputy Chair of WAGGGS, led the delegation.

Also in Denmark was Tasmanian Guide Leader, Abylene McGuire, 26 years, who joined the Australian Koala Foundation’s (AKF) delegation on behalf of Girl Guides Australia. Abylene promoted the plight of the koala and the effects of climate change on the much loved native Australian animal.

Hailing from the Northern Territory, Queensland, Victoria and Tasmania, the young women – who were selected by Girl Guides Australia for their passion for the environment as well as their leadership skills and service to the community – spoke on behalf of Guiding on the importance of preventing climate change and global warming. They advocated



*Copenhagen Climate Change Summit.*

that 'girls should be at the centre of efforts to combat climate change'.

In October 2009 young volunteer leader, Elizabeth Drysdale, participated in the Asia Pacific Beijing +15 forum in Manila, Philippines, at which women's Non-government organisation representatives from the Asia Pacific discussed the progress that has been made towards achieving the Beijing Declaration and platform for action, in preparation for the UN Commission on the Status for Women Conference to be held in New York in March 2010. In March 2010, another young volunteer Susanna Matters, will attend the New York conference as part of the WAGGGS delegation.

Young volunteer Leaders, Amy Spark and Emma Gillett, have been selected to represent Australia at the inaugural Young Women's World Forum in October 2010. At this forum they will share experiences and develop a declaration outlining what WAGGGS and its members, national governments and other parts of civil society should be doing to achieve the Millennium Development Goals by 2015. Delegates will also make a commitment to undertake a project in their own country.

### **Community Partnerships**

Through community partnerships, Guides are able to support their local communities in a positive and meaningful way. Some of Girl Guides Australia's current national partners are as follows.

#### **Clean Up Australia**

In 2009, 218 registered Guide Clean Up sites supported Clean Up Australia Day in March across Australia and undertook a range of local projects to clean up their local environment.

#### **Australian Koala Foundation**

Girl Guides Australia and the Australian Koala Foundation launched Save the Koala temporary tattoos for sale at \$2 a tattoo to raise funds in 2009 for the Foundation. Girl Guides Australia is a Gold Sponsor of the Australian Koala Foundation.

### **Harmony Day**

In 2008, 179 Guide Units across Australia joined with Scouts Australia, Woolworths Limited and the Department of Immigration and Citizenship to mark Harmony Day on 21 March by holding barbecues, raffles and displays at Woolworths stores in every State to increase public understanding of the diverse community in which we live.

### **National Tree Day**

On 2 August 2009 Girl Guides participated in Planet Ark's National Tree Planting Day – planting native shrubs and trees in their local communities across Australia to protect the environment.

### **Cork Recycling**

In 2008 Girl Guides Australia collected 36,529 kg of corks for recycling. This was a lower volume than in previous years, possibly reflecting the trend of cork alternatives for wine bottle closures. The income from cork recycling is used by State Guide organisations to help fund delivery of the Guide program.

### **Particular activities in the Centenary Year**

The theme for the Centenary of Guiding world wide – "Girls worldwide say...100 years of changing lives" – communicates Guiding as a movement that has remained relevant and viable from the Victorian era to the one we enjoy today. Girl Guides Australia also recognises that to continue to be a growing movement, we must review our practices and operations regularly.

The Australian Girl Guides centenary commenced in September 2009 and will conclude in February 2011. Our centenary theme is celebrating our past, living the present and powering into the future.

#### **Girls Celebrate Centenary Launch**

The Girl Guides Australia Centenary was launched in Brisbane in September 2009 at Girls Celebrate – a festival of fun and activities to celebrate the 1910 Crystal Palace Rally and promote advocacy – with nearly 3,000 Guides attending.



Images from the centenary project.

#### At Girls Celebrate:

- Participants learned about the following issues identified in the 2007 Guides Say research – poverty, global warming and the environment, world peace, discovering your potential, lifestyle, littering, water, animal cruelty, health (physical and mental) and bullying.
- Federal Minister Hon Kate Ellis MP, Minister for Early Childhood Education, Childcare and Youth, Minister for Sport, launched two new national partnerships with UNICEF and Clean Up Australia.
- Linden Edgell, Deputy Chair of the World Board, described the importance of strategic partnerships for increasing the impact of Guiding in the community.
- Jacqui Siebel, national Olave Program Manager and Anna Dekkar, Advocacy Manager UNICEF Australia, launched the Centenary International Service Challenge, Girls unite to read and write. Guides, using specially created education and activity packs, will explore the issue of equal access to education for children and young people worldwide (MDG 2). Guides will also raise funds to support a UNICEF development project to promote girls' education in Papua New Guinea by making the education system safer and friendlier for girls while raising awareness in the community of the importance of girls' education.
- Abylene McGuire, Olave Program participant, with Terrie Ann Johnson, CEO of Clean Up Australia, launched a mobile phone recycling partnership. Girl Guides Australia will receive \$1.50 for every mobile phone recycled and will be helping lead the way to bring about environmental change (MDG 7). Only 3% of mobile phones purchased in Australia are currently recycled.

#### Centenary Challenge

A special Centenary badge, the Centenary Challenge, provides Guides across Australia with the opportunity to develop their skills in a variety of areas from self awareness to global responsibility through a series of personal challenges. A Gold Centenary Challenge is available for those wanting an extra challenge.

#### International Service Challenge

Members will undertake a new International service project in collaboration with UNICEF – Girls unite to read and write.

#### Australian Service Challenge

Members will participate in a series of activities to increase their understanding of people with disabilities and provide service to disability organisations.

#### Girl Guides Centenary Coin

By June 2010 the Royal Australia Mint will produce a circulating \$1 coin to commemorate Guiding and its Centenary.

#### Centenary Stamps

Australia Post will issue three stamps, one domestic and two international, in September 2010 to commemorate the Centenary of Guiding.

#### ACE – Australian Centenary Event

In January 2010, 2500 Guides aged 10-17 and volunteer Leaders will participate in an International Centenary Camp at Geelong, Victoria.

### **Power Up**

Also in January 2010, 100 18–30 year old members will participate in a learning and development program focusing on event management, public relations and media skills. At the conclusion of the workshop they will have identified an issue they care about and developed a plan of action to advocate on this issue to the broader community. They will also learn about decision making and governance so that they can take up active roles in committees and governance bodies across Girl Guides Australia.

### **World Thinking Day**

On 22 February 2010, members will participate in a program of activities based on the WAGGGS theme 'together we can end extreme poverty and hunger'.

### **New uniform**

In February 2010 Girl Guides Australia will be launching a modern, practical, vibrant and attractive uniform range for girls and adults. The new uniform has been designed based on the feedback from our 2007 Guides say, our Uniform project that all youth members, parents of youth members and adults were invited to participate in.

### **Leadership for Life**

The Governor General, her Excellency Quentin Bryce, will launch an inspirational coffee table book on 28 February 2010. The book tells the stories of 100 women from across Australia from all walks of life and professions who have contributed to Guiding or who attribute their personal success in life in some small way to Guiding.

### **International Women's Day**

On 8 March 2010 Guides will participate in UNIFEM breakfasts across Australia.

### **Clean Up Australia Day**

Every Unit will be encouraged to participate in the Clean Up Australia program.

### **Centenary Celebration Day**

Guide Units across Australia will have their own special party event on the 100th day of the year

using the WAGGGS theme 'plant' and the WAGGGS activity pack when they will connect with the communities in which they live.

### **Be the change**

In April 2010, 25 young Guides aged 14 to 30 will help the United Nations in their efforts to eliminate poverty by 2015 by participating in an AusAID funded National MDG and advocacy workshop. This will be followed by a series of state based workshops which will be organised by these young women in August 2010. Around 30 people will attend each state based workshop to increase awareness of the MDGs within Guiding and across the broader community. State workshop participants will then take action on one or more of the MDGs and raise awareness of the MDGs in their local community.

### **Anzac Day**

Guides across Australia will participate in Anzac vigils, marches, services and breakfasts on 25 April 2010.

### **100 Downunder**

All Units will participate in a program of activities based on the Arts at a regional or State level.

### **Centenary Guide Biscuits**

Guide biscuits with special centenary packaging will be sold in June 2010 in Guide Biscuit month.

### **Chain of Campfires**

Guides will participate in a Chain of Campfires across the nation and will be provided with a Campfire program, including two songs composed for the Centenary.

### **World Environment Day**

Guides will participate in a series of activities to work out their Global Footprint, together with ideas for reducing carbon emissions and minimising their impact on the environment.

### **National Tree Planting Day**

This program will provide Guide Units with trees and shrubs to plant in temperate areas across Australia.



*New Partnerships – UNICEF.*

### **Australian Guides Say**

Strengthening Girl Guides Australia's position as the leader of insight in the Australian female market, a new Guides Say survey in August 2010 will determine key issues impacting Australian females in the 7–30 year old age group.

### **UK Centenary Camp**

Girl Guiding UK will be celebrating 100 years of Guiding with Girl Guides and Girl Scouts from across the world; to be held at Harewood House, Leeds.

### **Go Girl**

Units will undertake a program of activities for Guides of all ages that encourages positive self-esteem and a healthy lifestyle.

### **Flying the Flag**

Every member across Australia will renew their Promise at 10am 10/10/10 and the World Flag will be flown at every possible location across Australia. A program of activities based on the

Promise & Law will be held in conjunction with the Promise Renewal.

### **WAGGGS Young Women's World Forum**

This forum being hosted by Girl Guiding UK in London, England, will focus on the UN Millennium Development Goals.

### **Tropical Tree Planting Day**

Guide Units in tropical areas across Australia will plant trees and shrubs in their local area.

### **Looking forward – Powering into the future**

Giving girls new experiences, new challenges and new ways to grow has been the organisation's focus for 100 years and its goal is to continue to transform girls' lives for the next 100 years.

The WAGGGS Centenary celebrations will continue until 2012 when Girl Scouts USA celebrates its centenary of Guiding. In 2011 and 2012 Australian Guides will continue to



participate in global centenary events, including World Thinking Day in 2011 ('empowering girls will change our world') and in 2012 ('we can save our planet').

Girl Guides Australia will continue to build the advocacy skills of our girls and young women to give girls a local, national and international voice so that they are heard by governments and the community on the issues that are important to them and in a way that can influence change.

At a vital time in girl's personal and social development, as evidenced by the recent neuroscience research on how girls learn<sup>3</sup>, we will continue to provide a safe, inclusive 'girls only' space where girls, by being themselves, can focus on achieving their potential and thrive.

We will continue to promote diversity and equality as Guiding helps develop girls and young women to their best, at their level in their way.

We will remain relevant to today's girls. Empowering girls and young women has always been our focus. Guides will be increasingly challenged by a program that extends beyond badges and will continue to get involved in anything from girl led community projects to volunteering in developing countries.

Our hope is that more and more girls from urban and rural communities, reflecting the

rich cultural and ethnic diversity of our society and all socio-economic groups, can become active Guide members.

To achieve this we will attract more female volunteers of all ages who will personally grow and develop their leadership skills through working with girls and young women to build the leaders of tomorrow.

## End notes

1. Active Citizenship: Girls Shout Out!. Political Outsider: we care, but will we vote? A research report by Girl Guiding UK.
2. Guides Say...Project. A research report by Girl Guides Australia 2008.
3. Girls will be Girls Raising Confident and Courageous Daughters by Joann Deak Ph.D., with Teresa Barker Hyperion New York 2002.

## References

Girl Guiding/Girl Scouting: a challenging movement. World Association of Girl Guides and Girl Scouts, 1997.

*From a flicker to a flame* by Margaret Coleman and Honor Darling. Girl Guides Association of Australia Inc, 1989.

## Websites

Girl Guides Australia,  
<<http://www.girlguides.org.au>>

# 1

## GEOGRAPHY AND CLIMATE

*This chapter was contributed by the Australian Bureau of Meteorology (August 2009).*

Australia is the lowest, flattest and, apart from Antarctica, the driest of the continents. The first part of this chapter describes Australia's landforms and their history in terms of how they were formed. The second part discusses Australia's wide range of climate conditions.

The island continent of Australia features a wide range of climatic zones, from the tropical regions of the north, through the arid expanses of the interior, to the temperate regions of the south. Australia experiences many of nature's more extreme phenomena; including droughts, floods, tropical cyclones, severe storms, bushfires, and the occasional tornado. Each of these phenomena is discussed in this chapter.

Temperatures in Australia were relatively stable from 1910 to 1950. Since then both minimum and maximum temperatures have shown an increasing trend, with an overall increase from 1910 to 2009 of approximately 0.8°C. The acceleration in the warming trend that has occurred from the late-20th century has been largely attributed to the enhanced greenhouse effect.

This chapter contains the article *The exceptional heatwave of January – February 2009 in south-eastern Australia*.

# Geography of Australia

## Position and area

Australia comprises a land area of almost 7.7 million square kilometres (sq km) (table 1.1). The bulk of the Australian land mass lies between latitudes 10 degrees 41 minutes (10°41′) south (Cape York, Queensland) and 43°38′ south (South East Cape, Tasmania), and between longitudes 113°09′ east (Steep Point, Western Australia) and 153°38′ east (Cape Byron, New South Wales). The most southerly point on the mainland is South Point (Wilson's Promontory, Victoria) at 39°08′ south. The latitudinal distance from Cape York to South Point is about 3,180 kilometres (km), and to South East Cape 3,680 km, while the longitudinal distance between Steep Point and Cape Byron is about 4,000 km.

In a jurisdictional and economic sense, Australia extends well beyond the mainland continent and Tasmania, including about 12,000 islands. There are many near-coastal islands which are parts of states or the Northern Territory, the largest being Melville Island (Northern Territory) at 5,786 sq km. Other major near-coastal islands include Kangaroo Island (South Australia), King and Flinders Islands (Tasmania), Bathurst Island and Groote Eylandt (Northern Territory) and the Torres Strait Islands (Queensland).

Australia also has jurisdiction over a large number of islands remote from the coast. Some of these, such as Macquarie Island (Tasmania) and Lord Howe Island (New South Wales) are legally parts of states, but many are included in separate territories such as the Cocos Islands, Heard and McDonald Islands, Norfolk Island, Christmas Island, the Coral Sea Islands and Ashmore and Cartier Islands. Australia also administers a portion of Antarctica, the Australian Antarctic Territory. While most of these islands are small, the United Nations Convention on the Law of the Sea allows Australia jurisdiction over large tracts of the ocean and seafloor that surround them (see the *Forestry and Fishing* chapter).

Australia has an Exclusive Economic Zone (EEZ) that is 200 nautical miles (370.4 km) wide, and also incorporates areas of the continental shelf outside the 200-mile boundary. This is measured from the lowest astronomical tide, defined as the lowest level that sea level can be predicted to fall to under normal meteorological conditions. Where the boundary overlaps with potential boundaries of other countries (such as Papua New Guinea, Indonesia, East Timor and some French island territories), a boundary has to be negotiated. The EEZ gives Australia jurisdiction over a marine area of some ten million sq km.

The land area of Australia is almost as great as that of the continental United States of America (excluding Alaska and Hawaii), about twice the

### 1.1 AREA, COASTLINE, TROPICAL AND TEMPERATE ZONES

	ESTIMATED AREA		Length of coastline (a)	PROPORTION OF TOTAL AREA	
	Total	Total area		Tropical zone	Temperate zone
	sq km	%		%	%
New South Wales	800 642	10	2 137	..	100
Victoria	227 416	3	2 512	..	100
Queensland	1 730 648	23	13 347	54	46
South Australia	983 482	13	5 067	..	100
Western Australia	2 529 875	33	20 781	37	63
Tasmania	68 401	1	4 882	..	100
Northern Territory	1 349 129	18	10 953	81	19
Australian Capital Territory	2 358	(b)—	..	..	100
Jervis Bay Territory	73	(b)—	57	..	100
<b>Australia</b>	<b>7 692 024</b>	<b>100</b>	<b>59 736</b>	<b>39</b>	<b>61</b>

.. not applicable

— nil or rounded to zero (including null cells)

(a) Includes islands.

(b) Less than 0.1%.

Source: Australian Bureau of Meteorology; Geoscience Australia 2002, Geoscience Australia, Canberra, last viewed 14 October 2005, <<http://www.ga.gov.au>>.

## 1.2 AREA OF CONTINENTS

	'000 sq km
Continents	
Asia	44 900
Africa	30 300
North America	24 700
South America	17 800
Antarctica	14 000
Europe	9 900
Australia and Oceania	8 500
Total landmass	150 100

Source: Encyclopedia Britannica, Inc.

## 1.3 AREA OF SELECTED COUNTRIES

	'000 sq km
COUNTRIES (SEVEN LARGEST)	
Russia	17 075
Canada	9 971
United States of America	9 809
China	9 556
Brazil	8 512
Australia	7 692
India	3 204
SELECTED OTHER COUNTRIES	
Indonesia	1 904
France	547
Papua New Guinea	462
Japan	377
Germany	357
Malaysia	330
Philippines	299
New Zealand	268
United Kingdom	242
East Timor	14

Source: Encyclopedia Britannica, Inc.

size of the European Union, and 32 times greater than that of the United Kingdom. Tables 1.2 and 1.3 show the area of Australia relative to that of other continents and selected countries.

### Australia's topography

Australia is the lowest, flattest and, apart from Antarctica, the driest of the continents. Unlike Europe and North America, where some landscapes date back to only around 10-20,000 years ago, when great ice sheets retreated, the age of landforms in Australia is generally measured in many millions of years. This gives Australia a very distinctive physical geography.

Map 1.4 shows the elevation of the Australian continent. Most of the continent is at a relatively low elevation, with less than 1% of the country above 1,000 metres elevation. Elevations exceeding 2,000 metres are found only in the Snowy Mountains of New South Wales, with the highest peak being Mt. Kosciuszko (2,228 metres). Higher peaks are found in some external territories, with Mawson Peak on Heard Island reaching 2,745 metres, and much of the Antarctic plateau is above 3,000 metres.

The mainland continent can be divided into three large areas:

- the Western Plateau
- the Central Lowlands
- the Eastern Highlands.

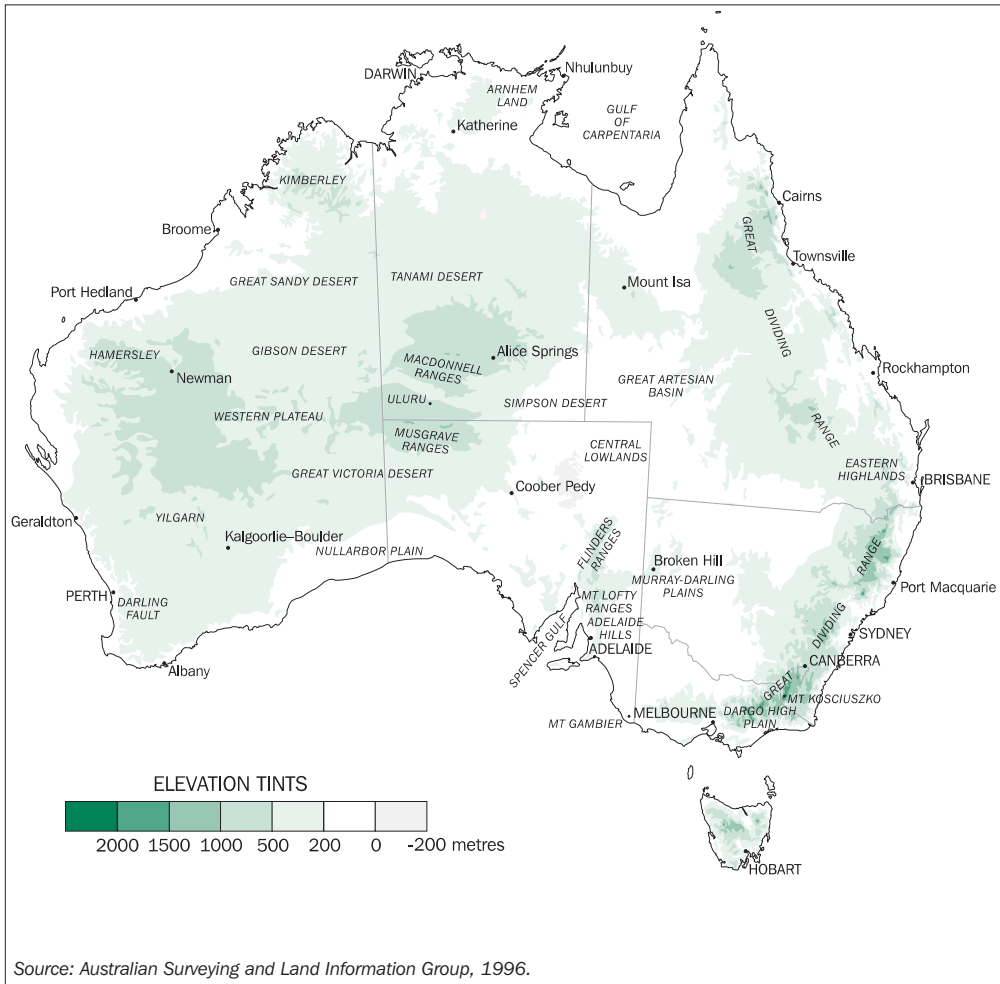
The areas have no defined boundaries, however, an indication of the location and size of each of the regions can be obtained from the following description of each of the areas with reference to map 1.4.

Much of the Western Plateau is relatively flat. There are, however, numerous more rugged areas near the coastal boundaries of the Plateau, including the Kimberley region and Hamersley Ranges in Western Australia, as well as a number of relatively isolated ranges in central Australia (such as the Macdonnell and Musgrave Ranges) and individual mountains, of which Uluru (Ayers Rock) is probably the best known.

The Central Lowlands stretch from the Gulf of Carpentaria through the Great Artesian Basin to the Murray-Darling Plains. Most of this area is flat and low-lying. The main exception occurs in South Australia, where relatively recent faulting has occurred, and the area takes the form of a number of blocks which have been moved up to form a series of ranges (e.g. the Flinders Ranges and Adelaide Hills), with the down-faulted blocks in between forming plains, some of them submerged (e.g. Spencer Gulf). Much of the Central Lowlands is occupied by the Great Artesian Basin, which consists of sedimentary rocks which hold water that enters in the wetter Eastern Highlands.

The Eastern Highlands, stretching along most of the length of the east coast, are characterised over much of their length by a steep escarpment on the coastal side, a series of high plateaus, and then more gentle sloping towards the inland.

## 1.4 ELEVATION



While the highest elevations (over 1,800 metres) are found in the Snowy Mountains and Victorian Alps, many of the plateaus further north in New South Wales exceed 1,000 metres elevation. In Queensland, however, 1,000 metres is only reached in a few locations and the highlands are generally less pronounced.

The coastal escarpment is particularly marked along much of the New South Wales and southern Queensland coast, as well as more isolated ranges further north, such as those around Cairns. Australia's highest waterfalls (Wollombi on the Macleay, Wallaman Falls on a tributary of the Herbert, Barron Falls near Cairns, and Wentworth Falls in the Blue Mountains)

occur where rivers flow over this escarpment. In the Victorian part of the highlands, the old plateau has been eroded into separate ranges and high plains, and is relatively steep on both the coastal and inland sides. Between the escarpment and the coast lies a coastal strip, sometimes flat but quite hilly in many places, and rarely more than 100 km wide.

As a result of the plateau-like nature of much of the Eastern Highlands, the Great Dividing Range, which separates rivers flowing to central Australia or the Murray-Darling Basin from those flowing to the Pacific Ocean or Bass Strait, is not very pronounced in most locations. In some places, such as the northern Snowy Mountains and

Brindabella Ranges, the highest ranges do not coincide with the Great Dividing Range (which in that area is east of Canberra).

The article *Landforms and their history in Year Book Australia 1988* provides a more detailed description of Australia's landforms.

## The history of Australia's landforms

As noted earlier, much of the Australian landscape is many millions of years old. The Western Plateau is especially old, and includes some of the oldest rocks on earth, more than 3,500 million years old. Most of this region has existed as a landmass for over 500 million years.

The present topography results from a long landscape history which can be considered as starting about 290 million years ago, the last time Australia was subjected to large-scale glaciation. Once the ice melted, parts of the continent subsided and were covered with sediment to form sedimentary basins such as the Great Artesian Basin. By early-Cretaceous times, about 140 million years ago, Australia was already so flat and low that a major rise in sea level divided it into three landmasses as the shallow Cretaceous sea spread over the land. The main separation of Australia from Antarctica took place between 100 and 80 million years ago.

In the following Tertiary times, Australia can be regarded as a landscape of broad swells varied by a number of sedimentary basins (Murray, Gippsland, Eucla, Carpentaria, Lake Eyre and others). These slowly filled up and some are now sources of coal or oil. Most of the Eastern Highlands were uplifted at about this time, although a few parts were still experiencing uplift as recently as one million years ago. The central Australian region was also uplifted, and then eroded, leaving remnant mountains and individual peaks such as Uluru (Ayers Rock), which was exposed about 65 million years ago. Another feature of this era is the Nullarbor Plain, an uplifted limestone sea floor dating to about 25 million years ago.

Throughout the Tertiary, volcanoes erupted in eastern Australia. Some individual volcanoes were the size of modern Vesuvius, and huge lava plains covered large areas. Volcanic activity continued up until a few thousand years ago in Victoria, south-east South Australia and Queensland, and a resumption at some time in the next few

thousand years cannot be ruled out. Australia's youngest volcano is Mt. Gambier in South Australia, about 4,600 years old.

Between 55 and 10 million years ago, Australia drifted across the surface of the Earth as a plate, moving north from a position once adjacent to Antarctica. During much of this period the Earth was much warmer and wetter than it is today, with little or no ice cover even at the poles, and hence Australia retained a warm, relatively moist climate through most of this period despite its latitudinal shift. It was probably under this climate that the deep weathered, iron-rich profiles that characterise much of Australia were formed. Aridity only seems to have set in after Australia reached near its present latitude range about five million years ago, with no known landforms (such as dunes or salt lakes) associated with aridity that are more than one million years old, and the northern part was probably never arid.

Today a large part of Australia is arid or semi-arid (see the article *Australia's deserts* in *Year Book Australia 2006*). Large parts of the arid zone are covered with sand dunes, which are typically aligned longitudinally according to prevailing wind directions (south-east to east in the north, north-west to west in the south). These dunes were formerly mobile but are now mostly fixed. Plains covered with small stones (stony deserts or gibber plains) are found in areas without a sand cover. Salt lakes are found in many low positions, in places following lines of ancient drainage. They are often associated with lunettes (dunes formed on the downwind side of lakes), which have been the location of many important finds of Aboriginal prehistory. In addition to the present arid zone, some of these landforms are found in areas which were formerly arid but have become wetter, such as parts of western Victoria and south-eastern South Australia.

On a global scale, the last few million years were notable for the Quaternary ice age. There were many glacial and interglacial periods (over 20) during this time, with the last ending about 12,000 years ago. As in the rest of the world, Australia's climate during this time was much cooler (and probably generally drier) than it is today, but only small parts of the continent were glaciated – the Central Plateau of Tasmania and an area of about 25 sq km around the summit of Mount Kosciuszko, above 1,800 metres elevation. These ice sheets disappeared about 20,000 years

ago. A more significant impact of glacial periods on Australian landforms was through its impact on sea level; during peak glacial periods the sea level was more than 100 metres lower than it is now, Tasmania and New Guinea were joined to the Australian continent, and in some areas, such as the east coast of Queensland, the coastline was several hundred kilometres away from its present location.

River erosion has been important in carving the detail of much of the Australian landscape. Those rivers which flow directly to the sea have dissected a broad near-coast region into plateaus, hills and valleys. Other rivers drain inland, and while they may be eroding the valleys near their highland sources, their lower courses are filling up with alluvium. Most rivers of the Murray-Darling Basin reach the sea, but many elsewhere either end in salt lakes which are dry for most of the time (such as Lake Eyre), or terminate on the plains of the Central Lowlands (such as the Paroo). Many of the features of the drainage patterns of Australia have a very long history, and some individual valleys have maintained their position for hundreds of millions of years. The salt lakes of the Yilgarn Plateau in Western Australia are the remnants of a drainage pattern that was active before continental drift separated Australia from Antarctica.

During glacial periods of low sea level, coastal rivers tended to cut down to that level, especially towards the sea. When sea levels rose again, some of these valleys were drowned (such as Sydney Harbour), while others filled with alluvium as the sea rose, creating flat lowland valleys.

Coastal geomorphology is also largely the result of the accumulation of sediment in drowned coasts. In some areas, such as Ninety Mile Beach (Victoria) or the Coorong (South Australia), there are long beaches made simply from this accumulation. Further north along the east coast, many parts of the coastline consist of alternating long beaches and rocky headlands, with the beaches backed by plains filled with river and marine sediments.

The offshore shape of Australia, revealed in isobath contours, results mainly from the pattern of break-up of the super-continent of which Australia was once a part. The continental shelf around Australia varies greatly in width; in some areas it is several hundred kilometres wide, while

in other areas, such as off far south-eastern New South Wales and much of Tasmania, it is less than 40 km in width. In South Australia, the continental shelf is cut by submarine canyons up to 4,600 metres deep offshore from the mouth of the Murray River. The Queensland coast is bounded by a broad plateau which has been exposed during the various glacial periods. Coral reefs have grown on this plateau at various times during the last 700,000 years when it has been submerged, although the present Great Barrier Reef, which did not start to form until after the last glaciation, is only a few thousand years old.

The Australian landforms of today are thus seen to result from long continued processes in a unique setting, giving rise to typical Australian landscapes, which in turn provide the physical basis for the distribution and nature of biological and human activity in Australia.

## Rivers and lakes

As described earlier, the rivers of Australia may be divided into two major classes; those of the coastal margins with moderate rates of fall, and those of the central plains with very slight fall. Australia's longest river system, the Murray-Darling, drains part of Queensland, most of New South Wales and northern Victoria, and a section of South Australia, finally flowing into the arm of the sea known as Lake Alexandrina, on the South Australian coast. The length of the Murray is about 2,520 km, while the longest branch of the combined Murray-Darling system, with its headwaters in the Culgoa catchment, is about 3,370 km long.

Most of the east coastal rivers are short, the exceptions being those rivers which penetrate the coastal escarpment, such as the Burdekin and Fitzroy in Queensland, and the Hunter in New South Wales. The south-west of Western Australia also has a number of short coastal rivers.

In addition to those rivers which form part of the Murray-Darling Basin, western Queensland has a number of inland-flowing rivers, such as the Paroo, Bulloo, Diamantina and Cooper Creek. These rivers do not reach the sea, but drain into Lake Eyre or dissipate without reaching any other river system.

A number of river systems reach the tropical or sub-tropical coast. Many of these are of considerable length, such as the Mitchell,

Gregory and Leichhardt in northern Queensland, the Daly and Victoria in the Northern Territory, and the Ord, Fitzroy, Ashburton, Fortescue and Gascoyne in Western Australia. All of these rivers have extremely large variations in flow between wet and dry seasons, arising from the great seasonal rainfall variations typical of this region, and some only flow intermittently. The Mitchell, whose annual discharge of about 12 cubic kilometres rivals the Murray-Darling as Australia's largest river system in terms of volume, has discharges in February and March about 100 times those of July.

Australian river discharges are very small compared with those of many rivers elsewhere, reflecting the very low runoff from the Australian continent. By way of comparison, the annual discharge from the Amazon basin in South America is approximately 7,000 cubic kilometres.

There are many lake types in Australia. The largest are salt lakes which are, or were, drainage sumps from internal rivers. For most of the time these lakes are beds of salt and dry mud. Lake Eyre, which has only filled three times in the last century, is the largest of these (9,500 sq km), while other large salt lakes include Lake Torrens (5,745 sq km) and Lake Gairdner (4,351 sq km).

Other natural lake types include coastal lakes formed by damming of valleys by marine sediments, fault angle lakes (such as Lake George near Canberra), volcanic lakes (mostly in Victoria, south-eastern South Australia and Queensland), and glacial lakes (most common in Tasmania, but also found in the Snowy Mountains). Many of these lakes are permanent, but some, such as Lake George, dry out during drought periods, and all are small compared with the inland salt lakes - Australia has no natural, unmodified, permanent freshwater lake larger than 100 sq km. Many artificial lakes, or lakes expanded by artificial means, also exist in all states and territories. The combined Lakes Gordon and Pedder in south-western Tasmania are the largest of these, both in surface area (513 sq km) and volume (11,320 megalitres (ML)), while other very large artificial lakes include Lake Argyle on the Ord in northern Western Australia (5,720 ML) and Lake Eucumbene in the Snowy Mountains Scheme (4,870 ML).

## Australia's climate

The island continent of Australia features a wide range of climatic zones, from the tropical regions of the north, through the arid expanses of the interior, to the temperate regions of the south. Australia is the world's second-driest continent (after Antarctica), with average (mean) annual rainfall below 600 millimetres (mm) per year over 80% of the continent, and below 300mm over 50%. Summers are hot through most of the country, with average January maximum temperatures exceeding 30 degrees Celsius (°C) over most of the mainland except for the southern coastal fringe between Perth and Brisbane, and areas at high elevations. Winters are warm in the north and cooler in the south, with overnight frosts common in inland areas south of the Tropic of Capricorn; only at higher elevations do wintertime temperatures approach those found in much of northern Europe or North America.

Seasonal fluctuations in both rainfall and temperature can be large in parts of the country. In northern Australia, temperatures are warm throughout the year, with a 'wet' season from approximately November through April, when almost all the rainfall occurs, and a 'dry' season from May through October. Further south, temperature becomes more important in defining seasonal differences and rainfall is more evenly distributed through the year, reaching a marked winter peak in the south-west and along parts of the southern fringe.

Australia experiences many of nature's more extreme phenomena, including droughts, floods, tropical cyclones, severe storms, bushfires, and the occasional tornado.

## Climatic controls

Australia's climate is largely determined by its latitude, with the mainland lying between 10 degrees south (°S) and 39°S and Tasmania extending south to 44°S. This places much of Australia under the influence of the sub-tropical high pressure belt (or ridge), which is a major influence on climate near, and poleward of, the tropics in both hemispheres. The aridity of much of Australia is largely a consequence of the subsiding air associated with this ridge of high pressure.



The sub-tropical ridge consists of areas of high pressure (anticyclones) which pass from west to east across the continent. Individual anticyclones, which can be up to 4,000 km across, can remain near-stationary for several days, bringing clear skies and fine conditions to large parts of the continent, before moving on. The latitude of the sub-tropical ridge varies seasonally. During winter, the ridge is normally centred between latitudes 30° and 35°S, whereas in summer it moves south to between latitudes 35° and 40°S (although individual systems can form significantly further north or south than these characteristic latitudes).

Winds circulate counter-clockwise around anticyclones in the Southern Hemisphere, and hence the flow on the southern side of the sub-tropical ridge tends to be westerly. This zone of westerly flow is generally strongest south of Australia (the so-called 'Roaring Forties'), but the northern part of the zone can affect southern Australia, particularly in winter and spring. Extensive depressions (lows) over the Southern Ocean have associated frontal systems embedded in the westerlies, which bring periods of rain and showers to southern parts of the country. Tasmania is under the influence of westerly flow for much of the year.

North of the sub-tropical ridge the flow is generally easterly. In winter this easterly- to south-easterly flow is especially persistent over the northern half of the continent, bringing dry conditions to most locations, except along the east coast. In summer, hot air rising over northern Australia causes an area of low pressure, drawing moist oceanic air from north and west of the continent. Where this air collides with the air coming from the south and east it generates what is known as the intertropical convergence zone, otherwise known as the monsoon trough. This zone progressively moves southwards over northern Australia (the exact timing and location vary from year to year), allowing warm, moist monsoonal air from the north-west to penetrate into the northern reaches of the continent. Elsewhere, moist easterly flow from the Pacific Ocean and Tasman Sea brings summer rain to most of the east coast.

Australia's generally low relief (map 1.4) means that topography has less impact on atmospheric systems that control the climate than is the case in other more mountainous continents. This lack

of topographic obstruction, and the absence of cool ocean currents off the west coast (as are found at similar latitudes off Africa and the Americas) as a stabilising influence, allows the occasional penetration of tropical moisture deep into the continent. As a result, the Australian desert, while relatively dry, does not match the extreme aridity of deserts such as the Sahara where vast areas have average annual rainfalls below 25 mm (see the article *Australia's deserts* in *Year Book Australia 2006*). There are also no barriers to occasional bands of moisture and cloud extending from the warm waters of the Indian Ocean off north-western Australia right across the continent to the southern states. These 'north-west cloud bands', which are most common in late autumn and early winter, can produce good rainfall in their own right, sometimes in significant amounts, but their major influence is to provide an additional in-feed of moisture into frontal systems traversing southern Australia, enhancing the rainfall produced by those systems.

One area where topography does have a major influence on rainfall is in Tasmania. Westerly winds are intercepted by the island's mountains, causing heavy rainfall on the western (windward) side, and leaving eastern and central Tasmania in a much drier so-called 'rain-shadow'. The interaction of topography with westerly winds in winter also plays a role in locally enhancing rainfall in regions such as the Australian Alps and the Adelaide Hills. The Great Dividing Range and associated ranges in eastern Australia enhance rainfall over the east coast hinterland during periods of easterly flow, and partially block moisture from penetrating further inland.

## Episodic weather events

Tropical cyclones are the most dramatic episodic weather events to affect Australia. Tropical cyclones are strong, well-organised low pressure systems that form poleward of about 5° of the Equator, over water that is warmer than approximately 26°C. (The weak Coriolis force near the Equator, which is important in inducing the rotation required for the development of a tropical cyclone, accounts for the lack of cyclones in that region.) Tropical cyclones can vary significantly in size, and once formed are classified as category 1 (weakest) to 5 (strongest) according to their intensity at any given time. Category 4 and 5 cyclones have wind gusts

exceeding 225 kilometres/hour (km/h) and can be exceptionally damaging, as in the near-total destruction of Darwin by Tropical Cyclone Tracy on 25 December 1974. The strongest wind gust instrumentally measured in a tropical cyclone on the Australian mainland is 267 km/h, at Learmonth (Western Australia) during Tropical Cyclone Vance on 22 March 1999, but it is believed that gusts in excess of 320 km/h have occurred away from instruments. The zone of most destructive winds associated with tropical cyclones is normally quite narrow, only about 50 km wide in the case of Tracy, and rarely more than 300 km.

Tropical cyclones bring heavy rain as well as strong winds, and are the cause of most of Australia's highest-recorded daily rainfalls (table 1.8). Warm water acts as the cyclone's energy source, and hence is required to maintain the strength of the winds. As a result, tropical cyclones rapidly lose their intensity on moving over land, although the rainfall with former cyclones often persists well after the destructive winds have eased, occasionally bringing heavy rains deep into the inland and causing widespread flooding. (Such flooding can also occur from tropical depressions that never reach sufficient intensity to be classified as cyclones.) Parts of inland Western Australia receive 30–40% of their average annual rainfall from these systems, and it is not unheard of for places to receive their average annual rainfall within a one or two-day period as a tropical cyclone (or ex-cyclone) passes by.

On average, about three tropical cyclones directly approach the Queensland coast during the season between November and May, and three affect the north and north-west coasts, but the number and location of cyclones vary greatly from year to year. The most susceptible areas are north of Carnarvon on the west coast and north of Rockhampton on the east, but on occasions tropical cyclones have reached as far south as Perth and northern New South Wales. The most intense cyclones (categories 4 and 5) are most common off the north-west coast, but can also occur off the northern and eastern coasts. Tropical Cyclone Monica (category 5), in April 2006, was the most intense cyclone ever recorded off the Northern Territory coast, while Larry (category 4 at landfall), in March 2006, was the most intense cyclone to make landfall in Queensland since 1918.

Away from the tropics, 'heatwaves' can occur over many parts of Australia. In southern Australia, they are normally associated with slow-moving anticyclones. A large anti-cyclone remaining stationary ('blocking') over the Tasman Sea will result in northerly or north-westerly flow on its western flank, bringing hot air from the centre of the continent over the south-east coastal regions (and sometimes to Tasmania). In south-western Australia, summer heatwaves are more commonly associated with the characteristic north-south trough of low pressure along the west coast moving offshore, suppressing sea breezes and causing hot north-easterly winds to blow from the interior to the coast.

'Cold outbreaks' can occur over southern Australia when intense south to south-west flow associated with strong cold fronts or large depressions directs cold air from the Southern Ocean over the continent. These outbreaks are most common in the south-east of the country and can result in low temperatures and snow falling to low elevations. While principally a winter and early spring phenomenon, cold outbreaks can occur at other times of year, and the fact that the air originates over the Southern Ocean (where there is only about a 4°C change in temperature from winter to summer) means that they can also bring cold air and 'unseasonable' snowfalls at high elevations at any other time of year.

Intense low pressure systems can also form outside the tropics, most commonly off the east coast where they are known as 'east coast lows'. These systems can bring very strong winds and heavy rain, particularly where they direct moist easterly winds on their southern flank onto the coastal ranges of southern Queensland, New South Wales, eastern Victoria and north-eastern Tasmania. Examples of systems of this type include two, a fortnight apart, in June 1967 off southern Queensland which caused major flooding and severe beach erosion in the Gold Coast region, an intense low in Bass Strait that sank or damaged many yachts in the 1998 Sydney-Hobart race, and a June 2007 system which brought flooding to the Hunter Valley in New South Wales and drove a large ship aground at Newcastle.

## Interannual and interdecadal variability

The major driver of interannual climate variability in Australia, particularly eastern Australia, is the El Niño-Southern Oscillation phenomenon. El Niño is an anomalous large warming of the central and eastern tropical Pacific Ocean, while La Niña, the reverse phase of the system, is an anomalous cooling. The Southern Oscillation refers to a see-sawing of atmospheric pressure between the northern Australian-Indonesian region and the central Pacific Ocean. El Niño events are strongly associated with abnormally high pressures in the northern Australian-Indonesian region and abnormally low pressures over the central Pacific, while the reverse is true during La Niña events.

The Southern Oscillation Index (SOI) is an index of the pressure differences between Darwin and Tahiti and has traditionally been used as an indicator of El Niño events (which are very often, but not always, associated with a strongly negative SOI). However, with modern satellite and floating buoy observations developed over the last 30 years, ocean temperature anomalies, both at and below the surface, can be monitored directly and hence proxy measurements, such as the SOI, are less important than they once were.

El Niño events characteristically develop during the southern autumn, and continue for about 9-12 months until the following autumn. The 2002-03 El Niño followed this pattern, developing in May-June 2002 and dissipating in February-March 2003. In contrast, the 2006-07 event developed unusually late in August-September 2006 (although dry conditions were well established in many areas by then), before breaking down in February-March 2007. On occasions El Niño events are followed immediately by La Niña events (or vice versa), but it is more common for them to be followed by near-normal (neutral) ocean conditions. Events lasting for more than one year are rare, but not unknown. There are typically two to three El Niño events per decade, but there is large variation from decade to decade in their frequency and the balance of El Niño and La Niña events; since 1980, El Niño events have been predominant, whereas La Niña events were frequent in the 1950's and 1970's. The most significant La Niña event, in terms of ocean temperatures, since 1988 occurred in late 2007 and early 2008, with some redevelopment over the summer of 2008-09,

although its effect on rainfall in many parts of Australia was modest.

El Niño events are generally associated with a reduction in winter and spring rainfall across much of eastern, northern and southern Australia. This can lead to widespread and severe drought, particularly in eastern Australia, as well as increased daytime temperatures and bushfire risk. Conversely, La Niña events are generally associated with wetter-than-normal conditions and have contributed to many of Australia's most notable floods. There is considerable variation, however, in the way each El Niño and La Niña event affects rainfall patterns from the time of onset through its developmental stages to eventual decay.

Temperatures in the tropical Indian Ocean also have an influence on Australia's climate, particularly in the south-west of Western Australia, where the influences of El Niño and La Niña events are more limited. Indian Ocean conditions also have a bearing on winter rainfall in south-eastern Australia through their effects on the frequency of northwest cloud bands (see earlier section).

Many parts of Australia also have a high level of rainfall variability on decadal timescales. The drivers for this are unclear, although at least some of the variability is linked with variations on decadal timescales in the relative frequency of El Niño and La Niña events. Interdecadal variability is particularly high in the more arid areas of Australia. As an example, the 11-year average annual rainfall at Marree (South Australia) has fluctuated from around 100 mm in the 1960s to 250 mm in the 1970s.

The wide range of rainfall variability in Australia has had many consequences. Perhaps the most famous occurred on the southern fringe of the South Australian desert, in the Flinders Ranges region, in the 1870s. In 1865, a boundary ('Goyder's Line'), based on surveys of native vegetation, had been defined by the Surveyor-General, G.W. Goyder, as the northern limit of the region where cropping was feasible. The years immediately following were particularly wet and many farms were established north of Goyder's Line. They prospered for a few years, but when rainfall returned to more normal levels, the farms became unviable and were largely abandoned. Many of the ruined homesteads are still visible today.

The article *Climate variability and El Niño* in the *Geography and climate* chapter of *Year Book Australia 1998* provides further details.

### Climate change

Temperatures in Australia were relatively stable from 1910 until 1950, and since then have followed an increasing trend, with an overall increase during 1910 to 2009 of approximately 0.8°C. Overnight minimum temperatures have warmed more quickly than daytime maximum temperatures, but both have increased over almost the entire continent, with the largest increases occurring in north-eastern Australia. In conjunction with this trend, the frequencies of frosts and other extreme low temperatures have decreased, while the frequency of extreme high temperatures has increased, although at a slower rate. Over Australia the observed warming has accelerated in recent years, and the warming from the late-20th century has been largely attributed to the enhanced greenhouse effect.

Over the continent as a whole, rainfall has increased over the 1900–2009 period, with the largest increases occurring over northern and north-western Australia. Since 1960, however, there have been substantial decreases in rainfall over three relatively small, but economically and agriculturally important, regions: south-western Western Australia; Victoria (particularly southern Victoria), and the eastern coastal fringe (particularly south-eastern Queensland).

Table 1.5 shows temperatures and rainfall averaged over Australia since the commencement of comprehensive national records. The article *A hundred years of science and service - Australian meteorology through the twentieth century* in *Year Book Australia 2001* provides further details, including maps of temperature and rainfall trends to 1999.

While some temperature and rainfall data exist prior to the starting dates used in table 1.5, they have not been used in analyses of climate change. This is because large parts of the Australian continent had no observations before that time. In the case of temperatures, most pre-1910 data is also not comparable with post-1910 data, because the louvred, white-painted screen (the ‘Stevenson screen’) which is used for sheltering thermometers from direct solar radiation was only introduced as a national standard around that time. Many pre-1910 temperatures were

measured in locations such as underneath tin verandahs or even indoors, and cannot be validly compared with more recent data (see the article *Temperature measurement and the Stevenson screen* in *Year Book Australia 2005* for further details).

#### 1.5 MEAN TEMPERATURES AND RAINFALL(a)

Period (b)	Temperature deviation	Rainfall
	°C	mm
10 - YEAR PERIODS - ANNUAL RAINFALL		
1900–09	na	429
1910–19	-0.33	442
1920–29	-0.40	425
1930–39	-0.28	416
1940–49	-0.41	430
1950–59	-0.27	458
1960–69	-0.22	422
1970–79	-0.12	517
1980–89	0.23	459
1990–99	0.39	476
2000–09	0.49	486
YEARS		
1990	0.50	414
1991	0.68	463
1992	0.15	453
1993	0.30	484
1994	0.25	336
1995	0.18	517
1996	0.60	459
1997	0.23	508
1998	0.84	548
1999	0.21	576
2000	-0.21	696
2001	-0.10	547
2002	0.63	329
2003	0.62	470
2004	0.45	495
2005	1.06	395
2006	0.47	486
2007	0.71	507
2008	0.41	478
2009	0.90	453

na not available

(a) Temperatures are shown as anomalies (or deviations) from 1961–90 base period.

(b) The full annual time series since 1900 (rainfall) and 1910 (temperature) are available via

<<http://www.bom.gov.au/climate/change>>.

Source: Australian Bureau of Meteorology.

## Rainfall and other precipitation

### Annual

Map 1.6 shows average annual rainfall over the Australian continent.

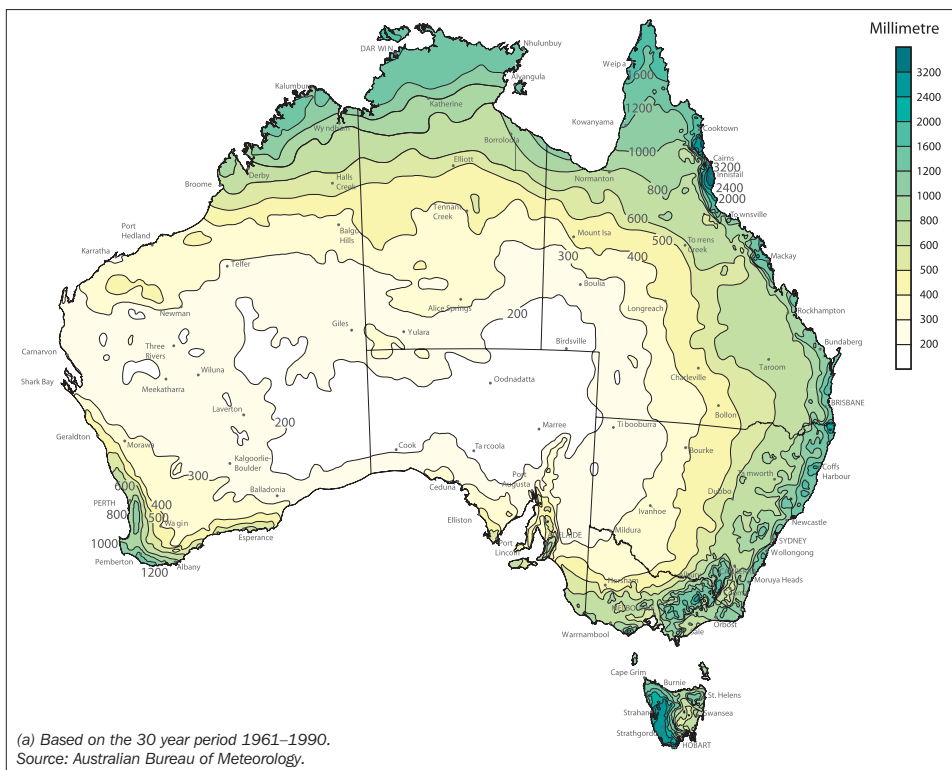
The driest section of Australia, with an average of less than 200 mm per year, extends over a large area from the west coast near Shark Bay, across the interior of Western Australia and northern South Australia into south-western Queensland and north-western New South Wales. The driest part of this region is in the vicinity of Lake Eyre in South Australia, where average annual rainfall is below 150 mm. This region is not normally exposed to moist air masses and rainfall is irregular, averaging rain on only around 20 days per year.

Very occasionally, favourable synoptic situations (usually, but not always, disturbances of tropical origin) can bring heavy rains to many parts of this normally arid to semi-arid region, with falls of up to 400 mm over a few days being recorded in the

most extreme cases. Such heavy rainfalls often lead to widespread flooding and a subsequent short-lived 'blooming' of the desert regions. Whilst such rain events are uncommon, the environment in Australia (both the lack of topographic barriers to moist air moving southwards from the tropics, and the presence of warm, rather than cold, waters as a potential source of moist air off the west coast) is more favourable to their occurrence than it is in some other arid zones. Rainfall in Australia's deserts is consequently higher than in some other deserts; the Atacama Desert on the west coast of South America has locations where no rain has fallen for centuries, whilst large parts of the Sahara and Arabian deserts, and parts of central Asia, have average annual rainfall of 25 mm or lower. There is only one recorded instance, at Mulyie (about 100 kilometres east of Port Hedland, WA) in 1924, of an Australian station being rainless for a complete calendar year.

The region with the highest average annual rainfall is the east coast of Queensland between

1.6 MEAN ANNUAL RAINFALL FOR AUSTRALIA (a)



Cairns and Cardwell, where mountains are very close to the tropical coast. The summit of Bellenden Ker has an average of 8,012 mm over 36 years of records, while at lower elevations, Topaz has an average of 4,405 mm over 29 years, and Babinda 4,243 mm over 98 years. The mountainous region of western Tasmania also has a high annual rainfall, with Lake Margaret having an average of 2,949 mm over 64 years, and short-term records suggest that other parts of the region have an average near 3,500 mm.

The Snowy Mountains area in New South Wales also has a particularly high rainfall. While there are no official rain gauges in the wettest areas on the western slopes above 1,800 metres elevation, runoff data suggests that the average annual rainfall in parts of this region exceeds 3,000 mm. Small pockets with averages exceeding 2,500 mm

also occur in the north-east Victorian highlands and some parts of the east coastal slopes.

### Seasonal

Australia's rainfall pattern is strongly seasonal in character, with a winter rainfall regime in parts of the south, a summer regime in the north and generally more uniform or erratic throughout the year elsewhere. Major rainfall zones include:

- the marked wet summer and dry winter of northern and north-western Australia. In this region winters are normally almost completely dry (e.g. Darwin in table 1.7), except near exposed eastern coastlines.

**1.7 AVERAGE MONTHLY RAINFALL AND TEMPERATURES(a), Capital cities and Alice Springs**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<b>AVERAGE DAILY MAXIMUM TEMPERATURE (°C)</b>													
Sydney	26.1	26.4	25.2	23.1	20.4	17.7	17.2	18.5	20.7	22.4	23.6	25.6	22.3
Melbourne	25.8	26.5	24.0	20.5	17.3	14.4	13.9	15.3	17.3	19.7	21.8	24.2	20.1
Brisbane	29.2	28.8	28.0	26.1	23.5	21.1	20.6	21.6	23.9	25.5	27.1	28.6	25.3
Adelaide	28.7	29.3	26.1	22.2	18.8	16.0	15.2	16.5	18.7	21.7	24.7	26.8	22.1
Perth	31.9	32.2	29.8	25.9	21.8	18.9	17.9	18.4	20.2	22.5	25.8	29.2	24.5
Hobart	21.8	22.0	20.2	17.9	15.1	12.3	12.2	13.4	15.3	17.2	18.6	20.3	17.2
Darwin	31.8	31.4	31.8	32.8	32.2	30.7	30.7	31.5	32.7	33.3	33.3	32.6	32.1
Canberra	27.7	27.3	24.5	20.0	15.9	12.3	11.5	13.2	16.2	19.4	22.6	26.3	19.7
Alice Springs	36.4	35.1	32.8	27.8	23.2	19.7	20.0	23.0	27.5	30.9	33.9	35.8	28.8
<b>AVERAGE DAILY MINIMUM TEMPERATURE (°C)</b>													
Sydney	19.4	19.6	18.1	15.2	12.5	9.6	8.6	9.5	11.7	14.2	16.0	18.3	14.4
Melbourne	15.4	15.8	14.3	11.7	9.8	7.6	6.8	7.6	9.0	10.5	12.2	13.9	11.2
Brisbane	21.2	20.9	19.5	16.8	14.2	10.8	9.5	9.9	12.4	15.5	18.0	19.9	15.7
Adelaide	16.8	17.1	15.2	12.1	10.2	8.1	7.4	8.2	9.6	11.5	13.8	15.5	12.1
Perth	17.2	17.8	16.3	13.4	10.8	9.1	8.4	8.5	9.3	10.5	13.0	15.2	12.5
Hobart	12.5	12.7	11.4	9.6	7.6	5.2	4.7	5.5	6.9	8.3	9.8	11.3	8.8
Darwin	24.8	24.9	24.6	24.2	22.4	20.1	19.4	20.9	23.4	25.1	25.6	25.5	23.4
Canberra	13.3	13.3	10.9	6.7	3.7	0.8	-0.1	1.0	3.6	6.3	8.9	11.6	6.7
Alice Springs	21.3	20.7	17.4	12.3	8.2	4.8	3.8	6.2	10.4	14.6	17.9	20.2	13.2
<b>AVERAGE RAINFALL (MM)</b>													
Sydney	136.3	130.9	151.2	127.7	110.0	126.8	69.6	92.0	68.8	88.1	101.7	73.4	1 276.5
Melbourne	52.4	49.0	40.0	52.1	58.8	48.6	45.1	54.6	59.2	69.5	64.2	61.1	654.4
Brisbane	158.6	174.3	125.3	108.7	115.7	53.1	60.1	37.2	34.8	96.8	106.0	119.6	1 194.0
Adelaide	19.4	12.7	26.6	42.0	61.2	79.7	79.9	68.0	62.2	347.5	29.7	27.8	563.0
Perth	12.7	18.2	15.9	36.5	92.8	145.5	154.1	117.3	76.7	44.2	26.5	7.2	745.3
Hobart	47.3	40.0	41.9	44.2	38.6	37.5	53.7	59.2	48.7	48.3	50.6	56.5	576.4
Darwin	499.8	336.2	376.3	104.4	23.2	1.6	0.5	8.0	15.5	76.6	134.0	270.9	1 847.1
Canberra	66.3	52.7	50.3	49.3	44.6	38.4	46.4	49.2	56.7	60.9	67.4	47.8	630.0
Alice Springs	41.3	48.5	47.9	24.1	20.6	15.2	14.3	9.2	11.3	23.2	29.8	40.1	325.6

(a) Averages are for the period (1971–2000) except for Adelaide (1977–2000). Brisbane, Perth, Darwin, Canberra and Alice Springs averages are for observations taken at airports, others are at locations in or near the central city.

Source: Australian Bureau of Meteorology 2003.

- the wet summer and relatively (but not completely) dry winter of south-eastern Queensland and north-eastern New South Wales (e.g. Brisbane in table 1.7).
- fairly uniform rainfall in south-eastern Australia, including most of New South Wales, parts of Victoria and eastern Tasmania (e.g. Sydney, Melbourne, Canberra and Hobart in table 1.7). The exact seasonal distribution can be influenced by local topography; for example, winter is the wettest season at Albury on the windward side of the Snowy Mountains, but the driest season at Cooma on the leeward side.
- a marked wet winter and dry summer (sometimes called a 'Mediterranean' climate). This climate is most prominent in south-western Western Australia and southern South Australia, but there is also a winter rainfall maximum in some other parts of the south-east, particularly those areas exposed to westerly or south-westerly winds, such as western Tasmania and south-western Victoria (e.g. Adelaide, Perth in table 1.7).
- low and erratic rainfall through much of the western and central inland. Rainfall events are irregular and can occur in most seasons, but are most common in summer (e.g. Alice Springs in table 1.7).

### Rain days and extreme rainfalls

The frequency of rain days (defined as days when 0.2 mm or more of rainfall is recorded in a 24-hour period) is greatest near the southern Australian coast, exceeding 150 per year in much of Tasmania, southern Victoria and the far south-west of Western Australia, peaking at over 250 per year in western Tasmania. Values exceeding 150 per year also occur along parts of the north Queensland coast. At the other extreme, a large part of inland western and central Australia has fewer than 25 rain days per year, and most of the continent away from the coasts has fewer than 50 per year. In the high rainfall areas of northern Australia away from the east coast the number of rain days is typically about 80 to 120 per year, but rainfall events are typically heavier in this region than in southern Australia.

The highest daily rainfalls have occurred in the northern half of Australia and along the east coast, most of them arising from tropical cyclones, or further south east coast lows, near the coast in mountainous areas. Daily falls in

excess of 500 mm have occurred at scattered locations near the east coast as far south as the Illawarra, south of Sydney, and falls exceeding 300 mm have occurred in north-eastern Tasmania, and the Otway Ranges and parts of Gippsland in southern Victoria.

### 1.8 HIGHEST DAILY RAINFALLS(a)

	<i>mm</i>	<i>Date</i>
New South Wales		
Dorrigo (Myrtle Street )	809	21.2.1954
Cordeaux River	573	14.2.1898
Victoria		
Tanybryn	375	22.3.1983
Mount Wellington	319	28.6.2007
Queensland(b)		
Beerwah (Crohamhurst)	907	3.2.1893
Finch Hatton PO	878	18.2.1958
South Australia		
Motpena	273	14.3.1989
Nilpena	247	14.3.1989
Western Australia		
Roebourne (Whim Creek)	747	3.4.1898
Fortescue	593	3.5.1890
Tasmania		
Cullenswood	352	22.3.1974
Mathinna	337	5.4.1929
Northern Territory		
Roper Valley Station	545	15.4.1963
Angurugu (Groote Eylandt)	513	28.3.1953
Australian Capital Territory		
Lambrigg	182	27.5.1925

- (a) The standard daily rainfall period is 9.00 am to 9.00 am.  
 (b) Bellenden Ker (Top Station) has recorded a 48-hour total of 1,947 mm on 4–5 January 1979, including 960 mm from 3.00 pm on the 3rd to 3.00 pm on the 4th. No observation was made at 9.00 am on the 4th.

Source: Australian Bureau of Meteorology.

### 1.9 HIGHEST ANNUAL RAINFALLS

	<i>Station</i>	<i>Year</i>	<i>mm</i>
NSW	Tallowood Point	1950	4 540
Vic.	Falls Creek SEC(a)	1956	3 739
Qld	Bellenden Ker (Top Station)	2000	12 461
SA	Aldgate State School	1917	1 853
WA	Kimberley Coastal Camp	2000	2 334
Tas.	Lake Margaret	1948	4 504
NT	Darwin Botanic Gardens	1998	2 906
ACT	Bendora Dam	1974	1 831

- (a) State Electricity Commission.

Source: Australian Bureau of Meteorology.

Most locations in temperate Australia away from the east coast have highest recorded daily rainfalls in the 75–150 mm range, although some locations have exceeded 200 mm. In these regions, extreme daily rainfalls are often associated with thunderstorms, for which rainfall recordings can vary dramatically over short distances.

The highest daily and annual rainfalls for each state and territory are listed in tables 1.8 and 1.9.

## Floods

Heavy rainfall conducive to widespread flooding can occur anywhere in Australia, but is most common in the north and in the eastern coastal areas. There are three main flood types:

- flash floods, which are generally localised and often emanate from severe thunderstorms (see *Thunderstorms, hail and tornadoes*).
- short-lived floods lasting a few days that occur in shorter coastal streams, and inundate the natural or modified flood plain. These are the most economically damaging floods, affecting the relatively densely-populated coastal river valleys of New South Wales and Queensland (e.g. the Burdekin, Brisbane, Tweed, Richmond, Clarence, Macleay, Hunter and Nepean-Hawkesbury valleys), and the major river valleys of the tropics. While these floods are chiefly caused by summer and autumn rains, outside the northern tropics they can occur in any season. Floods of similar duration also occur in Tasmania, Victoria (particularly rivers draining the north-east ranges) and the Adelaide Hills, although in these latter regions they are more common in winter and spring.
- long-lived floods of the major inland basins. These floods usually arise from heavy summer rains in inland Queensland and New South Wales, and move slowly downstream, some ultimately draining into the lower Murray-Darling system or towards Lake Eyre. Floods of this type can take several months to move from the upper catchments to the lower Darling or to Lake Eyre. They often cover an extensive area and gradually disappear through a combination of seepage into the sandy soils and evaporation; it is only occasionally that floodwaters of Queensland origin actually reach Lake Eyre. Floodwaters can also cover large areas in situ when heavy rains occur in a region of uncoordinated drainage such as much of western and central Australia.

(There is no evidence that Lake Eyre flooding leads to increased rainfall in eastern Australia, with recent research indicating that any observed linkage is an artefact of the tendency of Lake Eyre floods to occur during La Niña years).

## Droughts

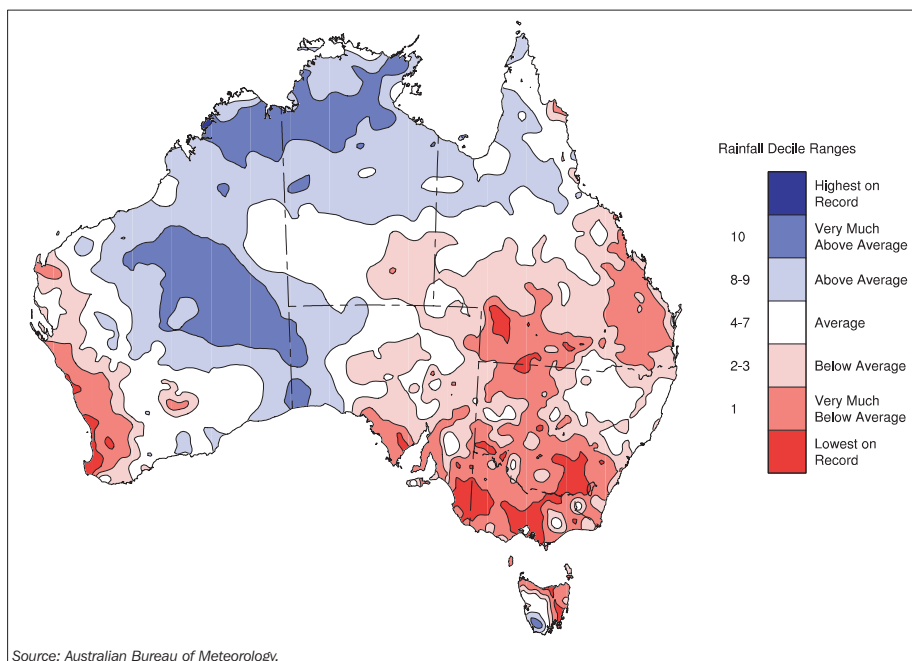
Drought, in general terms, refers to an acute deficit of water supply to meet a specified demand. The best single measure of water availability in Australia is rainfall, although factors such as evaporation and soil moisture are also significant and can be dominant in some situations. Demands for water are very diverse, and droughts therefore can be considered on a variety of timescales. Rainfall in a single year is important for unirrigated crop and pasture growth, while for large water storages and irrigation variations on a multi-year timescale are more important, and a succession of relatively dry years that are not exceptional individually can cause severe water storages when aggregated over an extended period.

While droughts can occur in all parts of Australia, they are most economically damaging in south-eastern Australia (southern Queensland, New South Wales, Victoria, Tasmania and the settled parts of South Australia), an area encompassing about 75% of Australia's population and much of its agriculture. In south-western Western Australia, another economically and agriculturally significant area, interannual variability of rainfall is smaller than it is in the south-east and severe widespread droughts in individual years are a less important issue, although, in recent decades, this area has experienced a general decline in rainfall (see *Climate change*).

In terms of rainfall deficits over a 1–2 year period, the most severe droughts on record for eastern Australia have been those of 1901–02, 1982–83, 1994–95, 2002–03 and 2006–07, all of which were associated with El Niño. Occasionally, severe droughts are embedded within more extensive dry periods; the 1901–02 drought was contained within a persistently dry period from 1895–1903 (the so-called 'Federation Drought'). Droughts can have a severe economic impact; for example, the direct effect of the 2002–03 drought on agricultural production is that it had a downward impact on gross domestic product growth of almost one percentage point between 2001–02 and 2002–03 (see the article in the *National*



## 1.10 AUSTRALIAN RAINFALL DECILES – 1 JUNE 2001 TO 31 MAY 2009



*Accounts* chapter in *Year Book Australia 2005*), while the 2006–07 drought had a downward impact of 0.6%. Other notable droughts on the 1–2 year timescale include those of 1888, 1914, 1919–20, 1940–41, 1944, 1946, 1965, 1967 and 1972.

Longer-term periods of persistent below-average rainfall are also often loosely referred to as 'droughts', and apart from that of 1895–1903, have generally been more regional in nature. A typical example of such a long-term drought has occurred over large parts of eastern Australia since 2001, and in some areas, such as southern Victoria (including Melbourne), since 1997. The Sydney region and eastern Queensland have been affected since 1999–2000, although with some moderation from mid-2007 onwards. The south-west of Western Australia has also experienced a marked downturn in rainfall since 1970. Other extended dry periods of this type affected much of inland Australia between 1958 and 1968, the south-east from 1937–45, and Queensland from 1991–95.

Typically, these multi-year dry episodes are not ones of continuous below-normal rainfall, but

rather periods of near-normal rainfall over several months, alternating with drier periods, and few, if any, times of sustained above-normal rainfall to offset the dry periods. Large water storages are particularly susceptible to such events, as they typically rely on a relatively small number of wet years to offset losses during drier periods. The Sydney water supply catchments provide an example of this, with about 40% of the total inflows into the Warragamba catchment since 1910 occurring in the wettest 10% of years.

The period since 2001 has been the driest on record over parts of eastern Australia, meaning that many large water storages did not fully recover from the 2002–03 drought prior to the onset of the 2006–07 drought. While rainfall returned to near-normal levels in the second half of 2003 following the severe drought of 2002–03, there have been no periods of sustained above-average rainfall in most of the region since early 2001. For eastern Australia as a whole (defined as the combined areas of Queensland, New South Wales, Victoria and Tasmania), the four-year period from June 2001 to May 2005 was the driest June to May four-year period on record,

whilst the six-year period from June 2001 to May 2007 ranks second behind 1900–06; heavy rains in the summers of 2007–08 and 2008–09 eased the situation somewhat in tropical Queensland and on parts of the east coast. For Australia's cropping regions the eight-year period from June 2000 to May 2008 was the driest on record, and for southeastern Australia a similar record was set by the period from June 2001 to May 2009. Conditions in the period 2001–09 are generally comparable to those of the lengthy drought of the 1940s.

Adding to the impact of recent dry conditions has been the accompanying increase in temperature. The period from July 2001 to June 2009 was clearly the warmest such period on record for eastern Australia. Maximum temperatures averaged over Australia were 0.86°C above the 1961–90 normal. In contrast, temperatures averaged through the driest periods of the 1940s were near the 1961–90 normal.

Drought definitions, and the area of coverage and length of droughts to that time, together with related information, may be obtained from the article *Drought in Australia* in *Year Book Australia 1988*.

### **Thunderstorms, hail and tornadoes**

Thunderstorms are most frequent over northern Australia. Thunder is heard at least once on 80 days or more per year near Darwin, largely as a result of convectional processes during the summer wet season. High frequencies (30 to 50 per year) also occur over the eastern uplands of New South Wales as a result of orographic uplift of moist air streams. Some parts of southern Australia receive fewer than ten thunderstorms per year, with eastern Tasmania receiving fewer than five. Through most of Australia thunderstorms are more common during the warmer half of the year, but along the southern fringe they also occur in winter as a result of low-level instability in cold air masses of Southern Ocean origin.

Thunderstorms are also relatively common over many parts of inland Australia, with most of the arid zone having at least 15 thunder days per year, and parts of interior Western Australia having 40 or more. These storms are often 'dry' with most or all rain evaporating before it reaches the ground – indeed, in a few locations there are

more days of thunder per year than there are days of rain.

Some thunderstorms can become severe, with flash flooding, large hail and damaging winds. These storms can be very destructive. The Sydney hailstorm of 14 April 1999, in which hailstones up to nine centimetres (cm) in diameter were observed, was Australia's most costly natural disaster, with losses estimated at \$1.7b. Flash flooding associated with severe thunderstorms has caused loss of life, notably when seven deaths occurred in Canberra on 26 January 1971, and thunderstorms have also been implicated in numerous air crashes, such as when a plane crashed into Botany Bay on 30 November 1961 with the loss of 15 lives. Wind gusts exceeding 170 km/h have been measured during severe thunderstorms, with one notable reading being 185 km/h at Brisbane Airport on 18 January 1985.

While thunderstorms in general are most common in northern Australia, the most damaging thunderstorms, in terms of hail and wind gusts, occur in the eastern halves of New South Wales and southern Queensland. Smaller hail (less than 1 cm in diameter) commonly occurs in southern coastal Australia in cold unstable air in the wake of cold frontal passages.

Tornadoes are also associated with severe thunderstorms, although they do not occur with the same frequency or severity as can occur in the United States of America. As tornado paths are narrow it is rare, but not unknown, for them to strike major population centres, with notable examples occurring in Brighton (Melbourne) in February 1918, the southern suburbs of Brisbane in November 1973, and several Perth suburbs in May 2005.

### **Snow**

During most years, snow covers much of the Australian Alps above 1,500 metres for varying periods from late autumn to early spring. Similarly, in Tasmania, the mountains are covered fairly frequently above 1,000 metres in those seasons. The area, depth and duration of snow cover are highly variable from year to year. These areas can experience light snowfalls at any time of year. Small patches of snow can occasionally persist through summer in sheltered areas near the highest peaks, but there are no permanent snowfields.

Snowfalls at lower elevations are more irregular, although areas above 600 metres in Victoria and Tasmania, and above 1,000 metres in the New South Wales highlands, receive snow at least once in most winters, as do the highest peaks of Western Australia's Stirling Ranges. In most cases snow cover is light and short-lived. In extreme cases, snow has fallen to sea level in Tasmania and parts of Victoria, most recently in August 2005, and to 200 metres in other parts of southern Australia, but this is very rare. The only major Australian cities to have received a significant snow cover at any time in the last

century are Canberra and Hobart, although Melbourne experienced a heavy snowfall in 1849, and there are anecdotal reports of snowflakes in Sydney in 1836.

The heaviest snowfall in Australian history outside the alpine areas was that of 4–5 July 1900, when 50-100 cm fell around Bathurst and in the Blue Mountains, and 25 cm as far west as Forbes (only 240 metres above sea level). Other major widespread low-elevation snow events include those of July 1901, July 1949 and July 1984.

## The exceptional heatwave of January-February 2009 in south-eastern Australia

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South-eastern Australia was affected by one of the most extreme heatwaves in its history in late January and early February 2009. The heatwave extended from 27 January to 8 February, with its most acute phases from 28 to 30 January and on 7 February.

In the first stage of the heatwave, at the end of January, extreme heat covered much of Victoria and South Australia, as well as northern and eastern Tasmania. In Tasmania, a state record of 41.5°C was set at Flinders Island Airport on 29 January, but this was to last only one day, as Scamander reached 42.2°C on the 30th January. In total six sites broke the previous state record of 40.8°C, and nearly half the state had its hottest day on record on the 30th, with Launceston Airport (39.9°C) breaking its previous record by 2.6 degrees. Elsewhere on the 30th, Melbourne (45.1°C) and Adelaide (45.7°C) both narrowly missed all-time records, and some South Australian and Victorian stations set all-time records (many of which were to be broken the following week). Adelaide (33.9°C) also had its warmest night on record on the 29th, and Adelaide and Melbourne also set records by experiencing four and three consecutive days, respectively, above 43°C.

Conditions were slightly cooler, particularly on the coast, over the next few days (although Mildura remained above 40°C throughout, eventually setting a Victorian record with twelve consecutive days above that temperature), before rising again on 6 February, and most dramatically on the 7th. On that day the focus of the most extreme heat was in Victoria, with 24 of the state's 35 long-term stations setting all-time records. This included Melbourne, which reached 46.4°C, breaking the 45.6°C set in January 1939. Hopetoun reached 48.8°C, a Victorian state record and the highest temperature ever recorded in the world so far south, and eight other sites broke the previous Victorian record, most notably the near-coastal location of Avalon Airport (47.9°C). Records were also set in South Australia, where Renmark's 48.2°C was a state record for February, and in southern New South Wales, where Wagga Wagga Airport (45.2°C) reached 45°C for the first time.

The last part of the heatwave coincided with the 'Black Saturday' bushfires in Victoria, which caused the loss of 173 lives and the destruction of over 3,500 structures. It was estimated (Victorian Department of Human Services, 2009) that 374 excess deaths occurred in Victoria during the first week of the heatwave (prior to any influence from the bushfires).

# Temperature

## Average temperatures

Average annual air temperatures range from 28°C along the Kimberley coast in the extreme north of Western Australia to 4°C in the alpine areas of south-eastern Australia. Although annual temperatures can be used for broad comparisons, monthly temperatures are required for detailed analyses.

July is the month with the lowest average temperature in all parts of the continent. In the south, the months with the highest average temperature are January or February. Due to the increase in cloudiness during the wet season, the month of highest average temperature in the north of the continent is December or, in the extreme north and north-west, November.

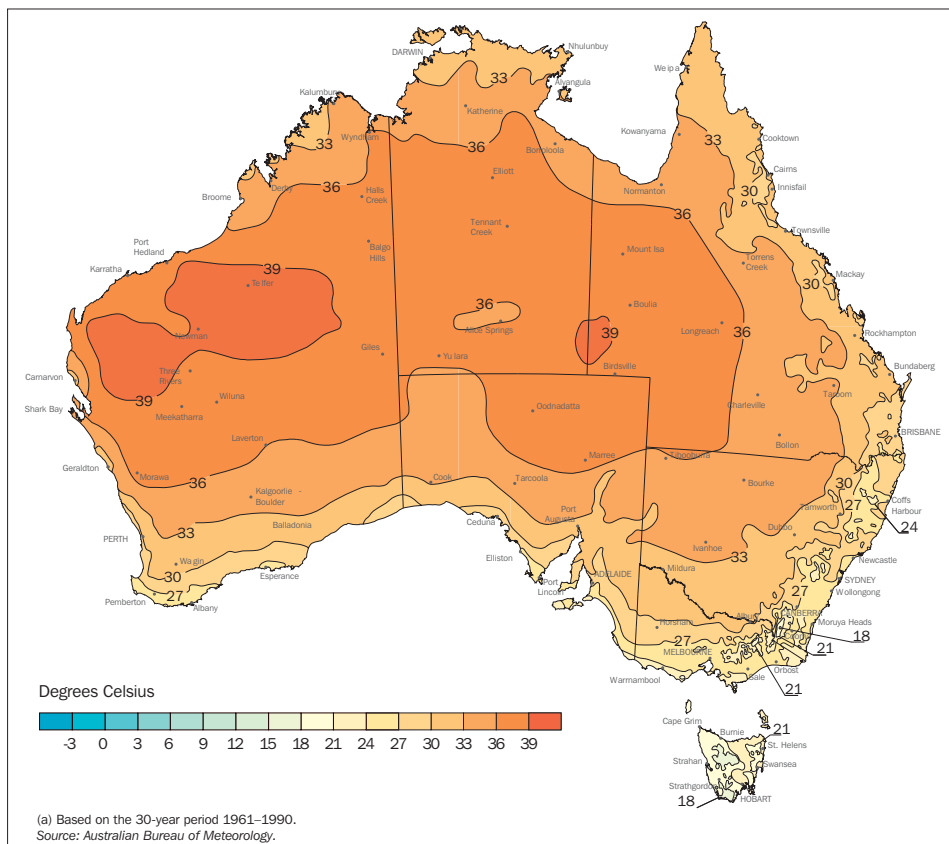
Temperature differences between winter and summer are least in tropical Australia. They are greatest in the southern inland, with seasonal differences along the coast being moderated by the ocean's proximity.

Maps 1.11 to 1.14 show average monthly maximum and minimum temperatures for January and July.

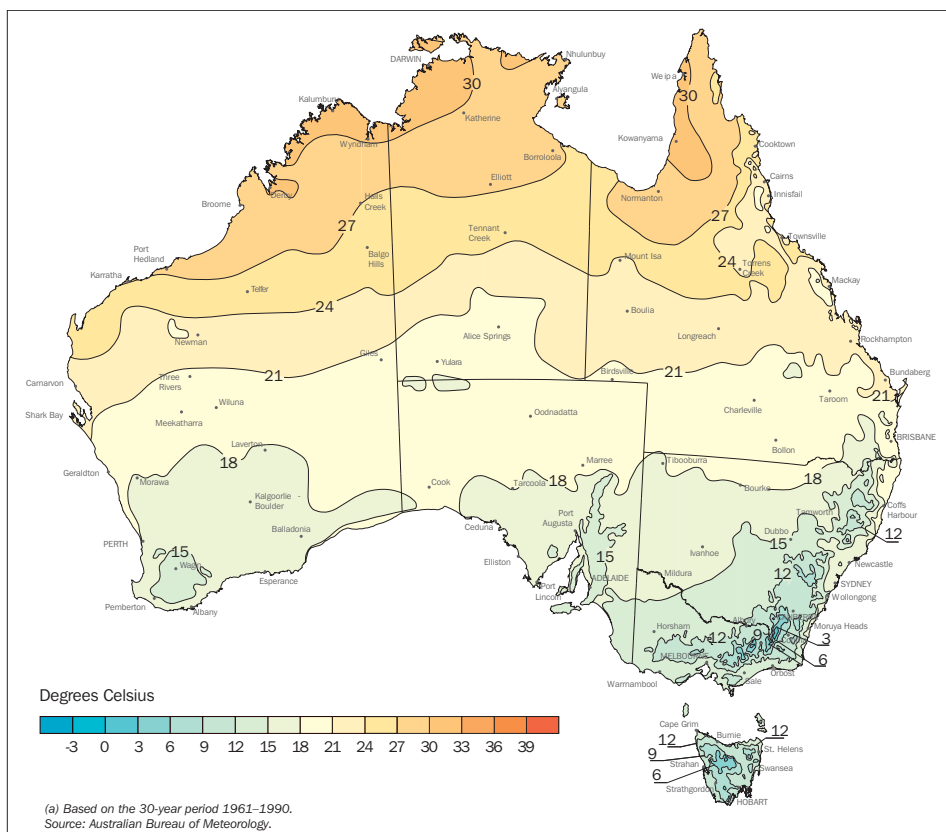
## Average monthly maxima

In January, average maximum temperatures exceed 35°C over a vast area of the interior and exceed 40°C over parts of the north-west. The highest summer maxima occur in the Pilbara and Gascoyne regions of north-western Western Australia, where average January maxima are around 41°C; in some years daily maxima exceed 40°C for several weeks at a time. Marble Bar experienced 160 consecutive days above 37.8°C

1.11 AVERAGE MAXIMUM TEMPERATURE (a) – JANUARY



## 1.12 AVERAGE MAXIMUM TEMPERATURE (a) – JULY



(100° Fahrenheit) in 1923–24, and had an average monthly maximum of 44.9°C in February 2007, an Australian record. At the other extreme, average January maxima are near 15°C on the highest peaks of the south-east ranges and near 20°C in much of Tasmania.

In July, a more regular latitudinal distribution of average maxima is evident, ranging from 30°C near the north coast to below 3°C in the alpine areas of the south-east.

### Average monthly minima

Average minimum temperatures in all seasons are highest in northern Australia and near the coasts, and are lowest in the mountainous areas of the south-east. The highest average January minimum temperatures (near 27°C) are found near the north-west coast, while in winter they exceed 20°C at some coastal locations in northern

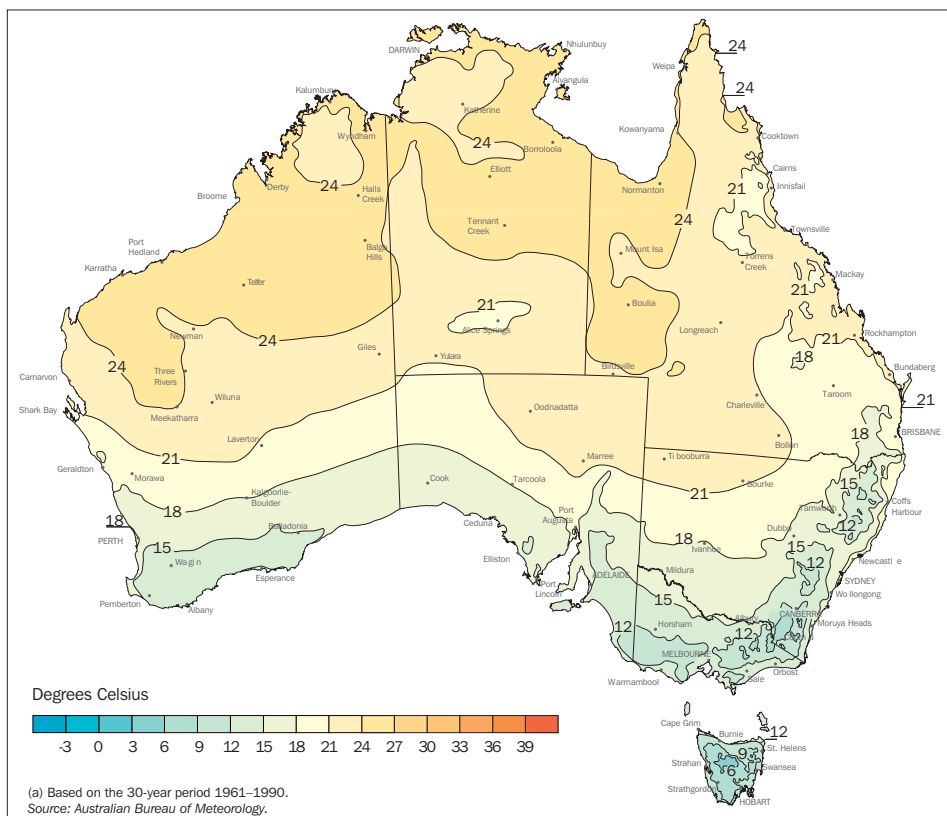
Australia and on the Torres Strait and Tiwi Islands.

Low minimum temperatures are highly sensitive to local topography, with the lowest minimum temperatures occurring in high-elevation valleys, as cold air drains from hills to valleys overnight, making hilltops and ridges warmer overnight, even in areas with local relief of only a few tens of metres. In the most favoured locations in the mountains of New South Wales average minimum temperatures are below 5°C in January and -5°C in July, while most inland areas south of the tropics have average July minima between 0° and 6°C.

### Extreme maxima

The highest extreme maxima in Australia are recorded in two regions; the Pilbara and Gascoyne regions of north-western Western Australia, and a broad belt extending from

### 1.13 AVERAGE MINIMUM TEMPERATURE (a) – JANUARY



south-western Queensland across South Australia into south-eastern Western Australia. Many locations in this region have recorded temperatures exceeding 48°C. Extreme temperatures in this southern belt are higher than those further north, due to the long trajectory over land of hot north-west winds from northern Australia, the lower moisture levels in summer compared with northern Australia, and the generally lower elevation (when compared with areas such as the southern Northern Territory and east-central Western Australia, both of which are largely more than 500 metres above sea level).

Most other locations in mainland Australia, except those near parts of the Queensland and Northern Territory coasts or above 500 metres elevation, have extreme maxima between 43° and 48°C. Most Tasmanian sites away from the north coast have extreme maxima between 35° and 42°C. The

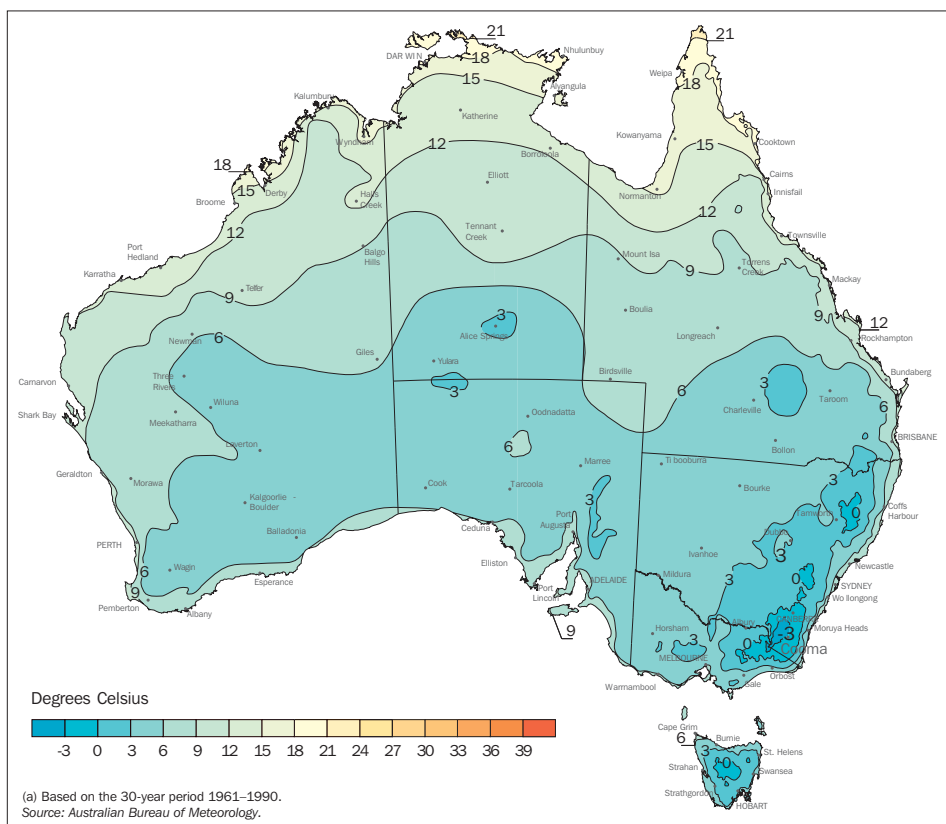
lowest extreme maxima are found along the north coast of Tasmania (e.g. 29.5°C at Low Head) and at high elevations (e.g. 27.8°C at Thredbo (Top Station)).

While extreme high temperatures are more common inland than they are near the coast, the highest temperatures recorded differ little between the two, except in Queensland, the Northern Territory and northern Tasmania. Notable extreme maxima observed near the coast include 50.5°C at Mardie and 49.1°C at Roebourne in Western Australia, 49.4°C at Whyalla and 47.9°C at Ceduna in South Australia, and 47.9°C at Avalon Airport in Victoria.

Extreme maximum temperatures recorded at selected locations, including the highest recorded in each state/territory, are shown in table 1.15.

Prolonged heat waves, with a number of successive days over 40°C, are relatively common

### 1.14 AVERAGE MINIMUM TEMPERATURE (a) – JULY



in summer over much of inland Australia, as well as parts of the north-west coast. Many inland locations have recorded ten or more successive days of such conditions, increasing to 20 or more days in parts of western Queensland and northern South Australia, and 50 or more days in north-western Western Australia. These heat waves can be accompanied by oppressively warm nights, with Oodnadatta (South Australia) recording an Australian record nine successive nights above 30°C in February 2004.

Such prolonged heatwaves are rare in coastal regions, except in Western Australia. The record number of consecutive days in Melbourne over 40°C, for example, is five, with Brisbane and Sydney each registering two.

The coastal areas, though, can be affected by extreme heat over a period of one or two days. The then most extreme heatwave in the recorded history of south-eastern Australia occurred in

January 1939. Adelaide (46.1°C on the 12th), Melbourne (45.6°C on the 13th) and Sydney (45.3°C on the 14th) all set record high temperatures during this period, as did many other centres in New South Wales, Victoria and South Australia. This extreme heat contributed to the 'Black Friday' bushfires, in which almost two million hectares were burnt and 71 lives lost (see the Bushfires section in the *Environment* chapter in *Year Book Australia 2004*). More recently, extreme heat affected south-eastern Australia in late January and early February 2009, with state records broken in Victoria and Tasmania (see table below and box) and a record high of 46.4°C in Melbourne on 7 February. The peak of this heatwave also coincided with the 'Black Saturday' bushfires.

#### Extreme minima

The lowest recorded temperatures in Australia have been in the Snowy Mountains of New South



### 1.15 EXTREME MAXIMUM TEMPERATURES

Station	°C	Date
New South Wales		
Wilcannia	50	11.1.1939
Victoria		
Swan Hill(a)	49.4	18.1.1908
Hopetoun	48.8	7.2.2009
Queensland		
Cloncurry(a)	53.1	16.1.1889
Birdsville	49.5	24.12.1972
South Australia		
Oodnadatta	50.7	2.1.1960
Western Australia		
Mardie	50.5	20.2.1998
Tasmania		
Scamander	42.2	30.1.2009
St. Helens	41.8	30.1.2009
Northern Territory		
Finke	48.3	1 & 2.1.1960
Australian Capital Territory		
Canberra (Acton)	42.8	11.1.1939

(a) Temperatures known not to have been measured in a Stevenson screen (see Temperature measurement and the Stevenson screen, Year Book 2005).

Source: Australian Bureau of Meteorology.

Wales, where Charlotte Pass recorded  $-23.0^{\circ}\text{C}$  on 28 June 1994 (table 1.16), with a number of other locations recording temperatures below  $-15^{\circ}\text{C}$ . It is likely that comparably low temperatures occur in similarly sheltered locations in the Victorian highlands, but no observing stations away from the exposed peaks exist in this area.

Away from the Snowy Mountains, the lowest extreme minima in Australia are found above 500 metres elevation on the tablelands and ranges of New South Wales, eastern Victoria and southern Queensland, as well as in central Tasmania. Many locations in this region have recorded  $-10^{\circ}\text{C}$  or lower, including Gudgenby, Australian Capital Territory ( $-14.6^{\circ}\text{C}$ ) and Woolbrook, New South Wales ( $-14.5^{\circ}\text{C}$ ). At lower elevations, most inland places south of the tropics have extreme minima between  $-3^{\circ}\text{C}$  and  $-7^{\circ}\text{C}$ , and such low temperatures have also occurred in favoured locations within a few kilometres of southern and eastern coasts, such as Sale, Victoria ( $-5.6^{\circ}\text{C}$ ), Bega, New South Wales ( $-8.1^{\circ}\text{C}$ ), Grove, Tasmania ( $-7.5^{\circ}\text{C}$ ), Eyre, Western Australia ( $-7.2^{\circ}\text{C}$ ) and Taree, New South Wales ( $-5.0^{\circ}\text{C}$ ).

In the tropics, extreme minima near or below  $0^{\circ}\text{C}$  have occurred at many places away from the coast, as far north as Herberton, Queensland ( $-5.0^{\circ}\text{C}$ ). Some locations near tropical coasts, such

as Mackay ( $-0.8^{\circ}\text{C}$ ), Townsville ( $0.1^{\circ}\text{C}$ ) and Kalumburu, Western Australia ( $0.3^{\circ}\text{C}$ ) have also recorded temperatures near  $0^{\circ}\text{C}$ . In contrast, some exposed near-coastal locations, such as Darwin, have never fallen below  $10^{\circ}\text{C}$ , and Thursday Island, in the Torres Strait, has an extreme minimum of  $16.1^{\circ}\text{C}$ .

The parts of Australia with the lowest extreme minimum temperatures are also the most subject to frost. The eastern uplands from southern Queensland to eastern Victoria experience ten or more frosts per month in each month from May to September, as do Tasmania's Central Plateau and a few susceptible locations in south-western Western Australia and the Flinders Ranges region of South Australia. At lower elevations frost is less frequent and the season is shorter, although only the immediate coastal margins and the far north can be considered totally frost-free.

Frosts can occur at any time of year over most of Tasmania, much of inland Victoria and south-eastern South Australia, and the higher parts of the tablelands of New South Wales. In these regions the median frost period generally exceeds 200 days, extending out to 300 days in central Tasmania.

### 1.16 EXTREME MINIMUM TEMPERATURES

Station	°C	Date
New South Wales		
Charlotte Pass	-23	28.6.1994
Victoria		
Mount Hotham	-12.8	30.7.1931
Queensland		
Stanthorpe	-11	4.7.1895
South Australia		
Yongala	-8.2	20.7.1976
Western Australia		
Eyre	-7.2	17.8.2008
Tasmania		
Shannon	-13	30.6.1983
Butlers Gorge	-13	30.6.1983
Tarraleah	-13	30.6.1983
Northern Territory		
Alice Springs	-7.5	12.7.1976
Australian Capital Territory		
Gudgenby	-14.6	11.7.1971

Source: Australian Bureau of Meteorology.

## Other aspects of climate

### Humidity

In terms of the average water vapour content or humidity of the air, Australia is a dry continent. The amount of moisture in the atmosphere can be expressed in several ways, the most common being relative humidity. This measure can be thought of as the relative evaporating power of the air. When humidity is low, moisture on an exposed wet surface, like our skin, can evaporate freely. When it is high, evaporation is retarded. If the temperature is also high, people will feel discomfort or even stress as the body's ability to cool through the evaporation of perspiration is diminished. The combination of high temperature and high humidity is potentially dangerous for people who are not adapted or acclimatised to such conditions.

The main features of the relative humidity pattern are:

- over the interior of the continent there is a marked dryness during most of the year, which extends towards the northern coast in the dry season (May-October).
- the coastal fringes are comparatively moist, although this is less so along the north-west coast of Western Australia where airflow is predominantly off the continent.
- in northern Australia, the highest values of humidity occur during the summer wet season (December-February) and the lowest during the winter dry season (June-August).
- in most of southern Australia the highest values are experienced in the winter rainy season (June-August) and the lowest in summer (December-February).

By way of a historical note, it is interesting that, as late as 1927, Griffith Taylor, from the Department of Physical Geography, University of Sydney, was asserting that tropical Australia was an unhealthy place to live, at least for women, because of its climate. However in recent decades the introduction of air conditioning, more appropriate building design, and improved health measures such as proper sanitation, have greatly increased the comfort levels of those living in the tropics.

### Global radiation

Incoming global radiation includes radiant energy reaching the ground directly from the sun and radiation received indirectly from the sky that is reflected and scattered downwards by clouds, dust and other airborne particles.

While there is a high correlation between daily global radiation and daily hours of sunshine, the latter is more dependent on variations in cloud coverage. Daily global radiation is at its strongest, all other things being equal, when the sun is closest to overhead south of the tropics (21–22 December), or directly overhead in the tropics. On the north-west coast around Port Hedland, Western Australia, where average daily global radiation is the highest for Australia (22–24 megajoules per square metre), average daily sunshine is also highest, being approximately ten hours. By way of contrast, in Darwin the global radiation values for the dry month of July and cloudy month of January are comparable, yet the number of sunshine hours for July approaches twice that for January.

### Sunshine

Sunshine here refers to bright or direct sunshine. Australia receives relatively large amounts of sunshine although seasonal cloud formations affect spatial and temporal distribution. Cloud cover reduces both incoming solar radiation and outgoing radiation from the earth's surface, and thus affects sunshine, air temperature and other measures of climate.

Most of the continent receives more than 3,000 hours of sunshine a year, or nearly 70% of the total possible. In central Australia and the mid-west coast of Western Australia, totals slightly in excess of 3,500 hours occur. Totals of less than 1,750 hours occur on the west coast and highlands of Tasmania, which is the equivalent of only 40% of the total possible per year.

In southern Australia, the duration of sunshine is greatest about December when the sun is at its highest elevation, and lowest in June when the sun is lowest. In northern Australia, sunshine is generally greatest over the period August to October prior to the wet season, and least over the period January to March during the wet season.

## Evaporation

Average annual pan evaporation exceeds rainfall over most of Australia. It is highest in the northern interior of Western Australia, reaching over 4,000 mm near Telfer, and exceeds 3,000 mm over most of tropical Western Australia, northern South Australia, the central Northern Territory and western Queensland. It is lower in tropical areas with higher rainfall and cloud cover, such as the Top End of the Northern Territory, and eastern Queensland.

At the other end of the scale, Australia's lowest pan evaporation occurs in Tasmania, ranging from well under 1000 mm per year in the west to close to 1,200 mm in the east. Over the mainland it is below 1,200 mm in the far south-west of Western Australia and in most of southern Victoria from Melbourne eastwards, and less than 1,400 mm over southern Victoria and adjacent parts of South Australia and New South Wales..

Over most of Australia evaporation is greatest in summer and least in winter, due to higher temperatures and solar radiation. In the far north, in contrast, the seasonal cycle is dominated by the effect of increased cloud cover during the tropical wet season. In this region evaporation peaks in spring, with a secondary peak in autumn in some places, and is lowest in late summer.

## Cloud

Seasonal distribution of cloudiness varies predominantly in line with seasonal variations in rainfall. In the southern parts of the continent, particularly in the coastal and low-lying areas, the winter months are generally cloudier than the summer months. This is due to the formation of extensive areas of stratiform cloud and fog during the colder months, when the structure of the lower layers of the atmosphere and higher levels of humidity favour the formation of this type of cloud. Particularly strong seasonal variability of cloud cover exists in northern Australia where skies are cloudy during the summer wet season and mainly cloudless during the winter dry season. Cloud cover is greater near coasts and on the windward slopes of the eastern uplands of Australia and less over the dry interior.

## Fog

The formation of radiation fogs, in which air near the ground is cooled by overnight radiation from the ground, is determined by the occurrence of a

favourable blend of temperature, humidity, wind and overlying cloud cover. The nature of the local terrain can also be important for the development of fog, and there is a tendency for it to be particularly prevalent and persistent in valleys and hollows. The incidence of such fogs can vary significantly over short distances. Other types of fogs occur when low cloud covers high ground ('hill fog'), particularly where highlands are close to the coast, and more rarely, near some coastlines when warm moist air moves over relatively cool waters near the shore ('sea fog').

Fog in Australia tends to be more common in the south than the north, although parts of the east coastal areas are relatively fog-prone even in the tropics. Fog is more likely to occur in the colder months, particularly in the eastern uplands. Radiation fogs normally develop overnight and dissipate during the morning or early afternoon, although on rare occasions they persist through the day, particularly in inland Tasmania. The highest fog incidence at a capital city is at Canberra which has an average of 47 days per year on which fog occurs, 29 of which are between May and August. Brisbane averages 20 days of fog per year. Darwin averages only two days per year, mostly in July and August.

## Winds

The mid-latitude anticyclone belt is the chief determinant of Australia's two main prevailing wind streams. These streams tend to be easterly to the north of this belt and westerly to the south. The cycles of development, motion and decay of low-pressure systems that form to the north and south of the anticyclone belt and also intersperse between individual anticyclones result in a great diversity of wind flow patterns. Wind variations are greatest around the coasts where diurnal land and sea-breeze effects also come into play. Sea breezes play a prominent role in modifying coastal climates in many parts of Australia, particularly along the west coast of Western Australia where they are a major feature of the summer climate. In Perth the sea breeze is known as the 'Fremantle Doctor'.

Orography affects the prevailing wind pattern in various ways, such as the channelling of winds through valleys, deflection by mountains and cold air drainage from highland areas. The high frequency of north-west winds at Hobart, for example, is caused by the north-west to south-east orientation of the Derwent River

valley, while wave effects on the lee side of the Adelaide Hills can lead to very strong local winds ('gully winds') in the eastern suburbs of Adelaide during periods of general easterly flow.

Perth is the windiest capital with an average wind speed of 15.6 km/h; Canberra is the least windy with an average wind speed of 5.4 km/h.

The highest wind speeds and wind gusts measured in Australia have been associated with tropical cyclones. The highest recorded gust was 267 km/h at Learmonth (Western Australia) on 22 March 1999 (with Tropical Cyclone *Vance*), while gusts reaching 200 km/h have been recorded on several occasions in northern Australia with cyclone visitations. The highest gusts recorded at Australian capitals have been 217 km/h at Darwin (during Tropical Cyclone *Tracy*), 185 km/h at Brisbane Airport and 156 km/h at Perth.

### Dust storms

Dust storms are a regular occurrence on windy days in many of the arid zones of Australia. During drought years, they can extend to the more densely settled areas of the south-east, particularly when strong north- to north-westerly winds occur in advance of an approaching cold front. Well-known examples include those of February 1983, which plunged central Melbourne into darkness, and September 2009, which covered a vast area of eastern Queensland and New South Wales, including Brisbane and Sydney. The first of these occurred in the later part of the severe El Niño-related drought of 1982–83, while the second has accompanied the prolonged dry conditions of the post-2001 period.

### Fire weather

While bushfires are not strictly a climatic phenomenon, both weather and climate are strong determinants in their occurrence and intensity. Provided vegetation is sufficiently abundant and dry, the spread of bushfires is most rapid in windy conditions with low humidity. In southern Australia such conditions are also normally associated with high temperatures. A Fire Danger Index, which combines expected wind speed, humidity, temperature and a measure of vegetation dryness, is frequently used to assess the risk of rapid fire spread on any given day.

The most favoured season for bushfires varies in different parts of Australia. In south-eastern Australia (including Tasmania) the most favoured season is summer and early autumn; in coastal New South Wales and southern Queensland it is spring and early summer; and in much of northern Australia it is winter and spring (or the later part of the 'dry' season). In the arid zones of Australia large fires most commonly occur in the months following an abnormally wet season, when there is enough vegetation to provide fuel.

The southeast Australian bushfires which occurred at the end of 2002 and the beginning of 2003 were among the most protracted and extensive of the last century. The 2002–03 bushfire season and its impact was discussed in the *Environment* chapter in *Year Book Australia 2004*. There were also protracted and extensive fires, particularly in Victoria, in 2006–07, while more recently the 'Black Saturday' fires caused major loss of life and destruction of property in Victoria in February 2009.

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# 2

## ENVIRONMENT

As well as providing key inputs to the economy, Australia's environment is fundamental to the quality of life and sense of wellbeing of Australians. Until recently, there has been a tendency to take clean water, clean air and natural attractions such as the Great Barrier Reef, for granted. However, increasing population and economic pressures have environmental consequences. For example, the need to accommodate an increasing population causes habitat loss for native plants and animals, while economic activity, especially among the more energy-intensive industries, is associated with the creation of greenhouse gas emissions, which has been linked to climate change. Climate change is receiving global attention and a 2007–08 ABS survey showed that about three-quarters of adult Australians (73%) were concerned about climate change.

On the positive side, there have been developments in recent years towards better management of natural resources, such as improved conservation in the use of household energy and water use, and increased recycling of many materials. This chapter provides information on the environmental views and behaviours of Australian households, including personal energy and water use, waste and recycling practices, transport use, environmental issues and involvement, and the value of Australia's environmental assets. It also includes a section on household renewable energy use. The chapter contains the article *Households and renewable energy*.

Chapter 3, *Land, Biodiversity, Water and Air*, provides information on water use and its availability in Australia, the management of land resources and its effects on biodiversity, greenhouse gas emissions, and air quality.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Household transport use

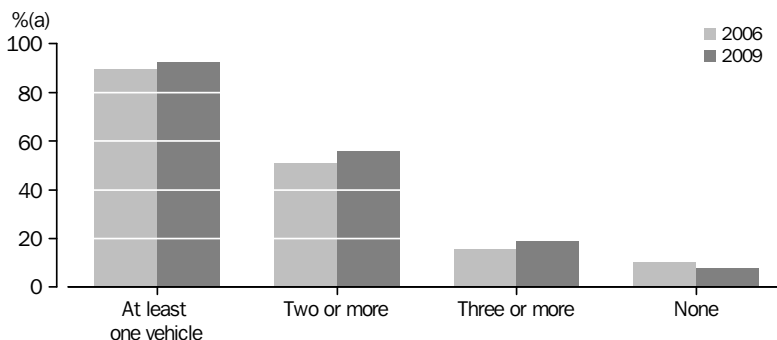
People's reliance on motor vehicle transport for commuting and that of industry for the distribution of goods, comes at an environmental cost. The transport sector is one of the largest generators of greenhouse gas emissions in Australia, contributing 13.2% of Australia's net emissions (78.8 megatonnes (Mt) of carbon dioxide equivalent (CO<sub>2</sub>-e) in 2007. This was 27% above the 1990 level, with an annual growth of almost 1.5%. Road transport was the main source of transport emissions in 2007 (87% or 68.5 Mt), of which passenger vehicles contributed nearly two-thirds (41.9 Mt) (Department of Climate Change (DCC), 2009).

A motor vehicle refers to any motor cycle or motor vehicle up to 4.5 tonnes. These include cars, station wagons, 4WD passenger vehicles,

utilities, panel vans or trucks, passenger vans or people movers, motorbikes or motor scooters. The most common types of motor vehicle that households have are a car/station wagon/4WD passenger vehicle (97% of households), followed by a utility/panel van/truck (18%), then a motorbike/motor scooter (6%).

In March 2009, 92% of Australian households kept at least one registered motor vehicle at home. The proportion of households with two or more registered motor vehicles increased from 51% in 2006 to 56% in 2009 (graph 2.1). These increases were reported in all states and territories, particularly in the Northern Territory where the proportion increased from 51% to 62%. Households with two or more registered motor vehicles in March 2009 were also common in Western Australia (60%), Queensland and the

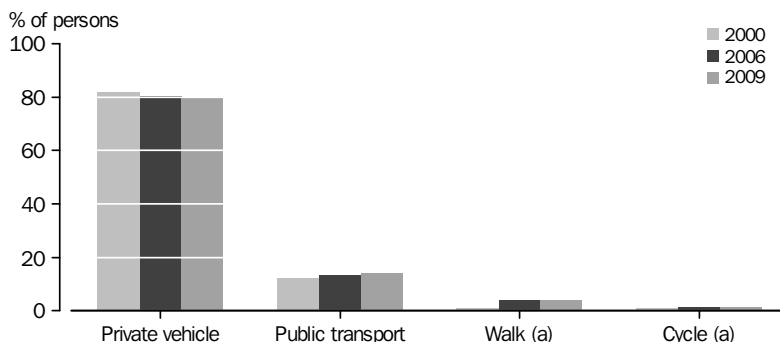
### 2.1 REGISTERED MOTOR VEHICLES KEPT AT HOME



(a) Proportion of total households.

Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

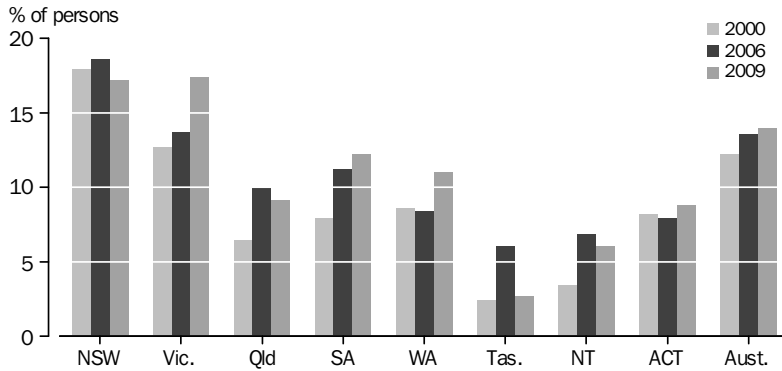
### 2.2 MAIN FORM OF TRANSPORT TO WORK OR FULL-TIME STUDY



(a) 2000 data for 'walk' and 'cycle' too small to show.

Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

### 2.3 PUBLIC TRANSPORT USE



Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

Australian Capital Territory (both 59%) and were least common in New South Wales (51%).

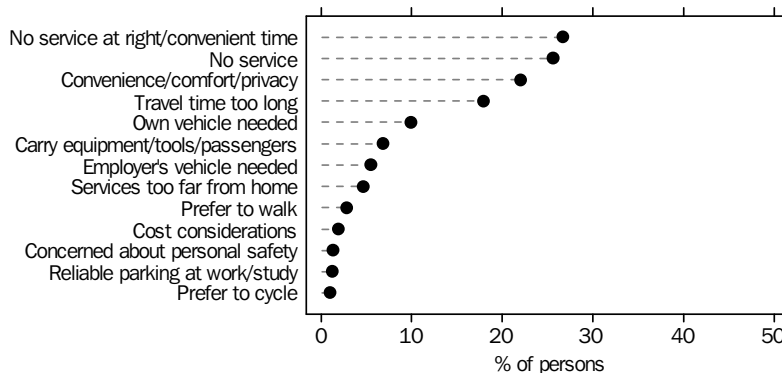
Eight in ten people aged 18 years and over used a private motor vehicle to travel to work or full-time study in March 2009, 14% took public transport, 4% walked and 2% cycled (graph 2.2). The use of private motor vehicles has decreased slightly from 82% in 2000 to 80% in 2009 and public transport has increased from 12% in 2000 to 14% in 2009.

Most people who used a private motor vehicle to travel to their place of work or full-time study did so as a driver or rider (94%), the remaining 6% travelled as a passenger. Tasmania had the highest percentage of people who used a private motor vehicle to get to their place of work or full-time study (90%) up from 84% in 2006, while

New South Wales had the least (75%). The age group of people most likely to use a private motor vehicle were the 45–54 years old (87%) and the least likely were the 18–24 years old (65%).

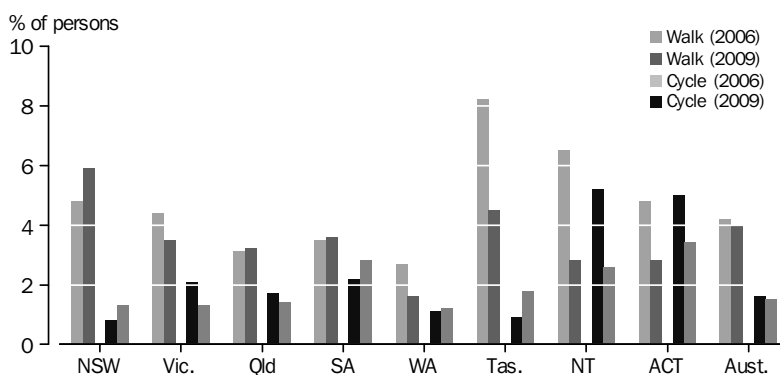
In March 2009, 14% of people reported using public transport to get to their place of work or full-time study, up from 12% in 2000 (graph 2.3). Use of public transport was highest in Victoria and New South Wales (both 17%) and lowest in Tasmania (3%). In Tasmania, public transport use declined from 6% in 2006 to 3% in 2009. Of the people who usually took public transport to their place of work or full-time study, 59% considered public transport to be more convenient, comfortable or less stressful than any other forms of transport, the same as in 2006. Nearly one-third (30%) said they used public transport

### 2.4 REASONS DON'T USE PUBLIC TRANSPORT



Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

## 2.5 WALK OR CYCLE TO WORK OR FULL-TIME STUDY



Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

because of price/cost while 20% did so because they did not own a motor vehicle and 19% used public transport because of parking concerns.

Lack of service continued to be one of the main reasons why people in Australia did not use public transport (graph 2.4). In March 2009, 27% of people reported that there was no service available at the right time or at a convenient time. In Tasmania and in the Australian Capital Territory, 38% of people gave this reason. More than one-quarter (26%) reported there was no service available in their area, while 22% reported that they preferred the convenience, comfort and privacy of a private motor vehicle.

On a national basis, the proportion of people who usually walked (4%) or cycled (2%) to their place of work or full-time study has remained relatively unchanged since 2006 (graph 2.5). In March 2009, less people walked to work or full-time study in Tasmania (from 8% in 2006 to 4% in 2009) and the Northern Territory (from 7% in 2006 to 3% in 2009).

Less people were cycling to work or full-time study in the Northern Territory and in the Australian Capital Territory (both 5% in 2006 down to 3% in 2009).

The most common reason reported by people for why they did not walk or cycle to their place of work or full-time study was that the distance was too far (71% for not walking, 45% for not cycling). This was reported by people in every age group.

The two most common reasons reported by people for walking or cycling were 'proximity of home to place of work or full-time study' (64%) and 'exercise and health' (50%). Only 7% of people said they walked or cycled because of environmental concerns.

Half of all Australian households had at least one working bicycle kept at their home. Of these households, two-thirds (66%) had two or more bicycles in working order. Bicycle ownership was highest in the Australian Capital Territory (66% of households) and lowest in New South Wales (46%).

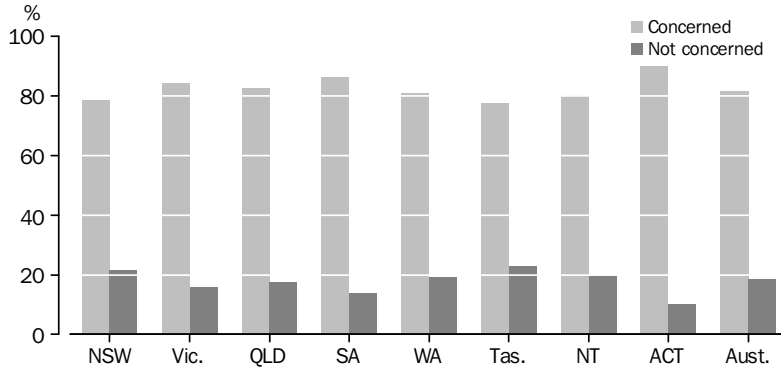
## Environmental views and behaviour

### Environmental views

In recent times, environmental issues have featured prominently in the media, including drought, bushfires, water reform and conservation, and climate change. An ABS survey in 2007–08 on environmental views and behaviour found that most Australians aged 18 and over (82%) were concerned about environmental problems, and more than half (53%) believed the condition of the natural environment was deteriorating (graphs 2.6 and 2.7).

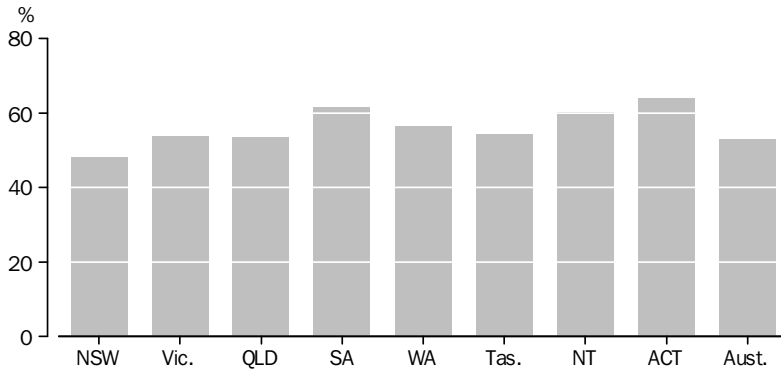
Australians aged 18–24 years reported less concern about the environment than all other age groups – around one-quarter (26%) said they were not concerned about the environment.

**2.6 WHETHER CONCERNED ABOUT ANY ENVIRONMENTAL PROBLEMS**



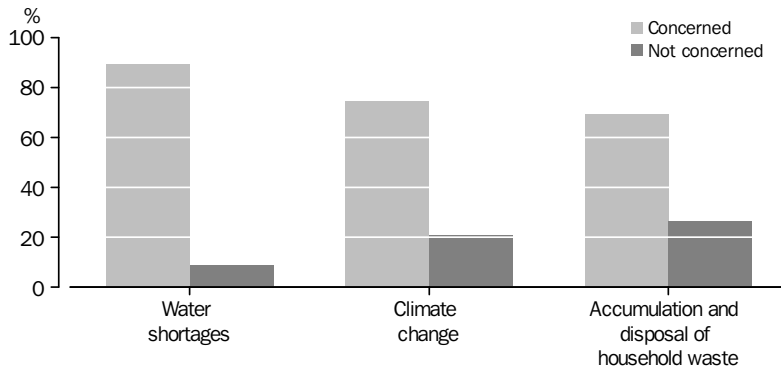
Source: *Environmental Views and Behaviour, Australia, 2007–08 (2nd Issue)* (4626.0.55.001).

**2.7 PEOPLE WHO THINK THE CONDITION OF THE ENVIRONMENT IS DECLINING**



Source: *Environmental Views and Behaviour, Australia, 2007–08 (2nd Issue)* (4626.0.55.001).

**2.8 PEOPLE CONCERNED ABOUT ENVIRONMENTAL ISSUES**



Source: *Environmental Views and Behaviour, Australia, 2007–08 (2nd Issue)* (4626.0.55.001).

Comparatively lower levels of concern were also reported by people without a non-school qualification (24% not concerned), and people not in the labour force and those aged 65 and over (both 23%).

Almost four in ten people (39%) thought the condition of the natural environment was neither good nor bad. People who were born overseas were much more likely than people born in Australia to say that the state of the natural environment was good (43% compared with 24%).

Almost nine out of ten people expressed concern about water shortages (89%). Around three-quarters (73%) of the population were concerned about climate change and more than two-thirds (69%) about the accumulation and disposal of household waste (graph 2.8).

Women were more likely than men to be concerned about environmental issues concerning water shortages, climate change and waste disposal. For example, 76% of women were concerned about climate change, compared to 71% of men. People who were employed were likely to be more concerned about environmental issues than those who were unemployed or not in the labour force.

### Environmental involvement

More than five million Australians aged 18 and over (34%) had participated in some form of environmental activity in the 12 months prior to the survey (graph 2.9). However, two out of every three people reported that they had not been

involved in any environmental activities during this period. The most commonly reported activity undertaken was signing a petition relating to any environmental issues (17%), followed by donating money to help protect the environment (14%). Only 2% participated in a demonstration or rally on environmental protection.

Those people whose personal gross weekly income was more than \$2,000 were more likely to donate money to help protect the environment while those earning less were most likely to be involved by signing a petition on environmental issues (graph 2.10).

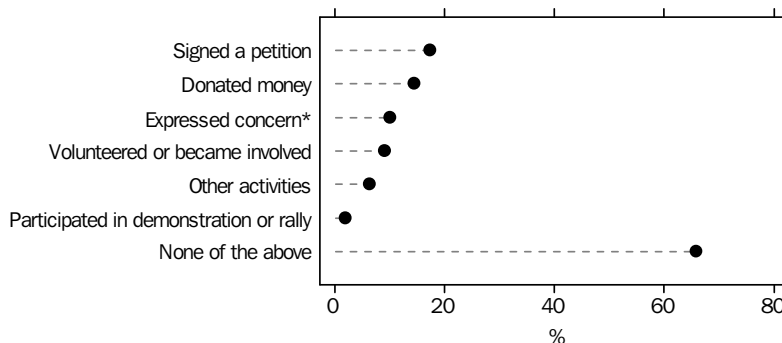
### Electricity use

Most Australians (88%) reported that they took steps to limit their electricity use in the 12 months prior to the 2007–08 survey. Nearly half (47%) reported that they thought their personal electricity use had decreased in the last 12 months. The most common reasons given for why they thought their electricity use had fallen were that people had tried to conserve energy at home (80%) (graph 2.11).

### Water use

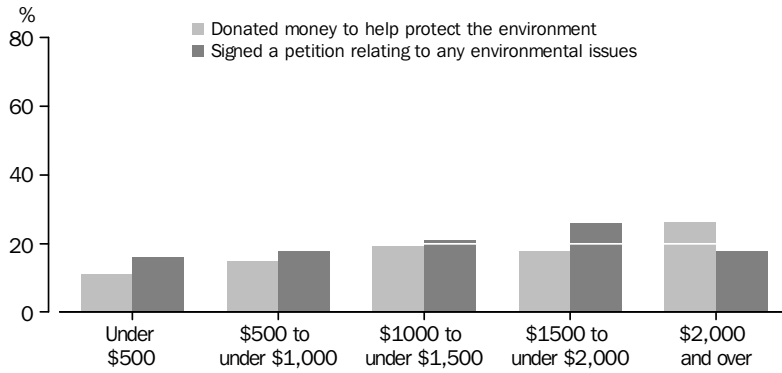
In 2007–08, more than half of the population (55%) reported that they thought their personal water use had decreased in the 12 months prior to the survey. The most common reason given by people for a decrease in water use was that they had tried to conserve water at home (76%). More than four in ten (42%) said water restrictions had reduced their water use (graph 2.12).

**2.9 ENVIRONMENTAL ACTIVITIES INVOLVED IN DURING THE LAST 12 MONTHS**



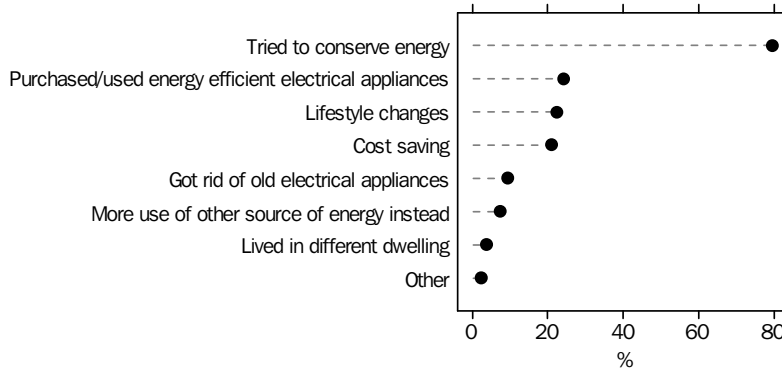
Note: \* This includes through a letter, email or by talking to responsible authorities.  
 Source: *Environmental Views and Behaviour, Australia, 2007–08 (2nd Issue) (4626.0.55.001)*.

### 2.10 PERSONAL GROSS WEEKLY INCOME



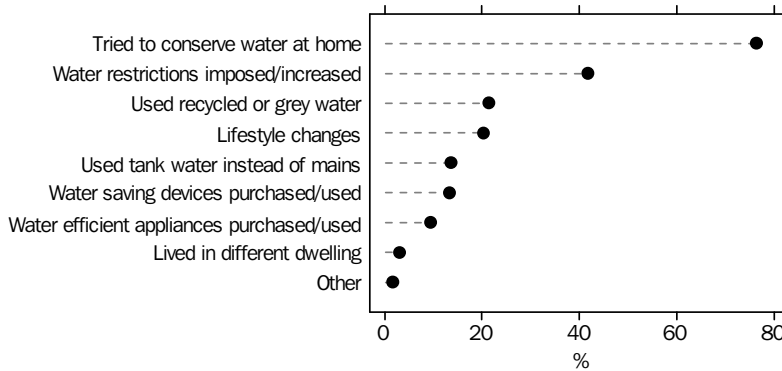
Source: *Environmental Views and Behaviour, Australia, 2007–08 (2nd Issue)* (4626.0.55.001).

### 2.11 REASONS PERSONAL ELECTRICITY USE DECREASED



Source: *Environmental Views and Behaviour, Australia, 2007–08 (2nd Issue)* (4626.0.55.001).

### 2.12 REASONS PERSONAL WATER USE DECREASED



Source: *Environmental Views and Behaviour, Australia, 2007–08 (2nd Issue)* (4626.0.55.001).

## Waste

Most Australians (82%) were satisfied with their waste collection services. Most Australians (84%) sorted recyclable from non-recyclable waste materials all or most of the time. One-third (33%) composted or recycled kitchen or food waste all or most of the time and four in ten Australians (41%) used green or reusable shopping bags all or most of the time (graph 2.13).

## Household energy use and conservation

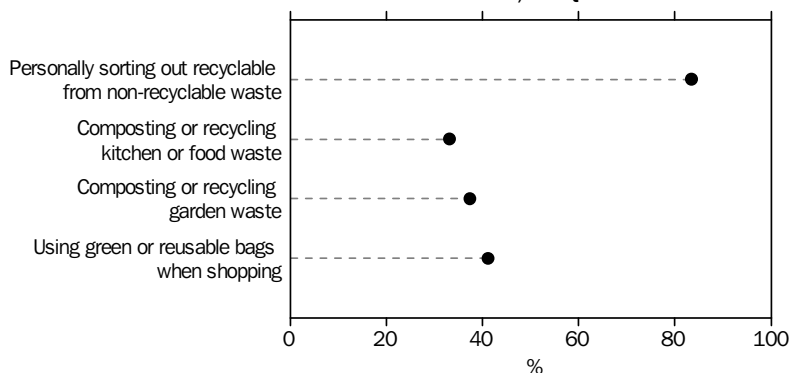
The amount and type of energy used in the home has considerable implications for the environment, including greenhouse gas generation, air pollution and natural resource depletion. The residential sector accounted for

about 7% of Australia's total energy use in 2007–08 (ABARE, 2009).

Practically all dwellings (99.9%) in Australia use electricity. Electricity was the main source of energy in 2008 for ovens (75%), cooktops (56%), hot water (46%), and space heating (35%). Households relied most heavily on electricity for space heating in Tasmania (65%), South Australia (47%) and New South Wales (43%).

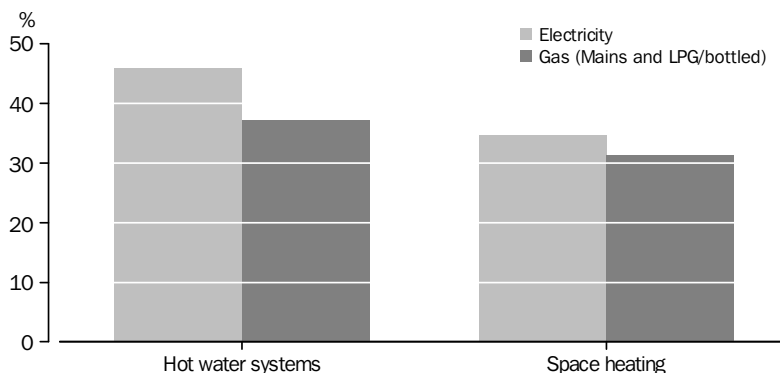
Gas (mains gas and LPG/bottled gas) was the second most common source of energy used by two-thirds (61%) of Australian households in 2008. About one in three Australian households used gas (mains gas and LPG/bottled gas) as their main source of energy for space heating (31%), while 37% used gas for heating water (graph 2.14).

**2.13 WASTE COLLECTION AND DISPOSAL, FREQUENCY OF**



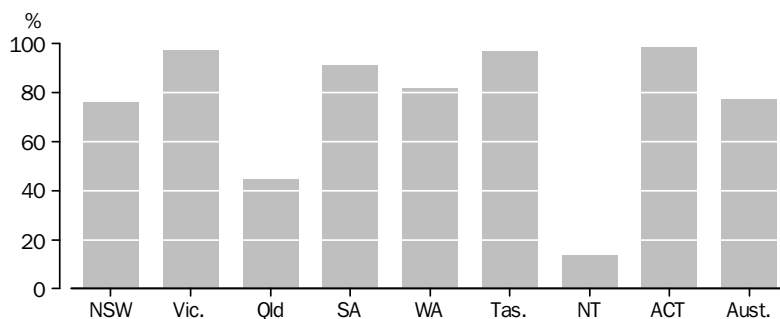
Source: *Environmental Views and Behaviour, Australia, 2007–08 (2nd Issue) (4626.0.55.001)*.

**2.14 ELECTRICITY AND GAS, Use in dwellings**



Source: *Environmental Issues: Energy Use and Conservation, Australia (4602.0.55.001)*.

## 2.15 HEATERS IN DWELLINGS



Source: *Environmental Issues: Energy Use and Conservation, Australia (4602.0.55.001)*.

More than three-quarters of dwellings (77%) in Australia had a heater in 2008 (graph 2.15). Nearly one-third (32%) of dwellings with heaters had two or more heaters in use in their homes – a slight increase from 30% in 2002.

Gas (not ducted) was the most common type of primary heating of Australian dwellings in 2008 (26% of dwellings), followed by reverse cycle air conditioners (not ducted) (18%), and then electric (not ducted) (16%) and ducted gas heaters (16%).

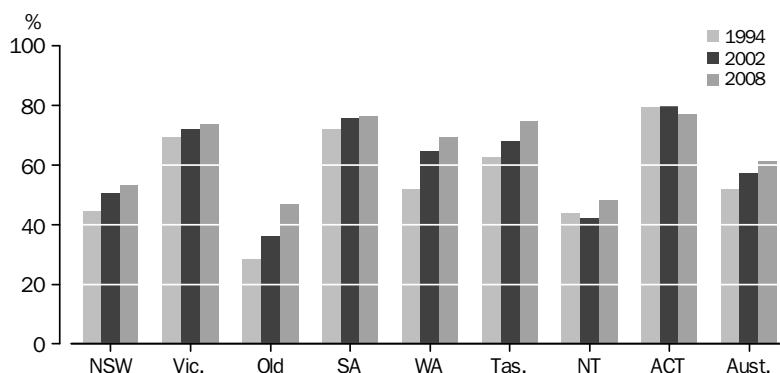
More than one-third of households (39%) nominated 'Comfort/convenience' as the main reason for their choice of heater. Less than 2% of Australian households chose their type of heating based on environmental considerations. All cooling uses electricity which has implications for

greenhouse gas emissions and the demand on the electricity grid on peak summer days (DEWHA, 2008b).

Two-thirds (66%) of dwellings in Australia used some form of cooling in 2008, more than doubling since 1994 (32%). Since 1994, reverse cycle/heat pump air conditioning has continued to be the most popular system of cooling (61% in 2008). There was a substantial increase in the proportion of dwellings with split system coolers as their main cooling system, from 18% in 2002 to 40% in 2008.

Insulation in ceilings, walls and floors will contribute to the comfort of a dwelling all year round, as well as a reduction in energy use for heating and cooling. The use of insulation in

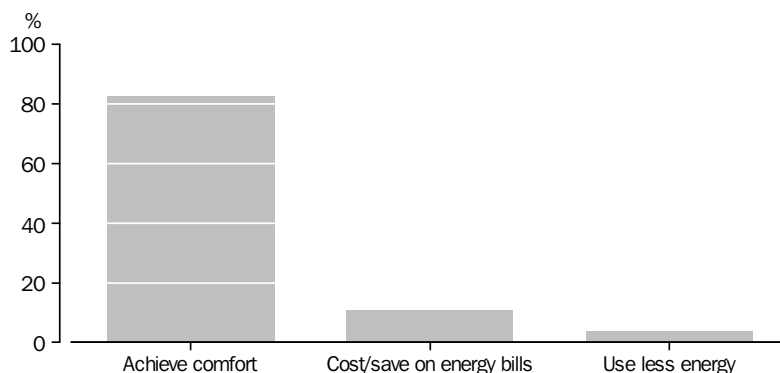
## 2.16 DWELLINGS WITH INSULATION



Source: *Environmental Issues: Energy Use and Conservation, Australia (4602.0.55.001)*.

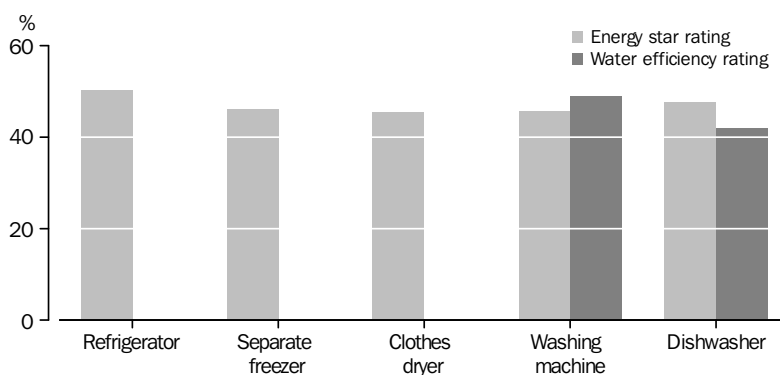


### 2.17 MAIN REASONS FOR INSTALLING INSULATION



Source: *Environmental Issues: Energy Use and Conservation, Australia (4602.0.55.001)*.

### 2.18 FACTORS CONSIDERED WHEN REPLACING/BUYING APPLIANCES



Source: *Environmental Issues: Energy Use and Conservation, Australia (4602.0.55.001)*.

homes has increased to 61% in 2008 up from 52% in 1994 (graph 2.16).

Most Australian households insulated their homes to achieve comfort (83%) while savings on energy bills and reductions in energy use were relatively minor considerations for the installation of insulation (11% and 4% respectively) (graph 2.17). For those households that reported that they had no insulation, 'not home owner/not responsible' was the main reason (34%). This was followed by 'cost' (17%) and 'have not considered' (12%).

While household appliances such as refrigerators, separate freezers, dishwashers etc. only accounted for about 30% of total energy consumption, they accounted for more than half

(53%) of residential greenhouse gas emissions (DEWHA, 2007).

Water efficiency rating, energy star rating and cost (price) were the three main factors considered by households across Australia when replacing or buying major white goods (graph 2.18). Energy star rating ranked first when replacing/buying a refrigerator (50%), separate freezer (46%) and clothes dryer (45%). Water efficiency rating was ranked first when replacing/buying a washing machine (49%). However, energy star rating was considered more important than water efficiency rating when replacing/buying a dishwasher (48%). Cost was considered most important when replacing/buying a heater (40%).

## Household water use and conservation

Households accounted for 11% of the total water consumed in Australia in 2004–05 while agriculture accounted for 65% (ABS, 2004–05).

Water supply and use needs to be understood in the context of Australia's climate which is characterised by highly variable rainfall between regions, seasons and year-to-year. Since 2002, many parts of Australia have been subject to mandatory water restrictions in response to low water availability due to drought. As urban populations grow, there is added pressure on existing water supplies.

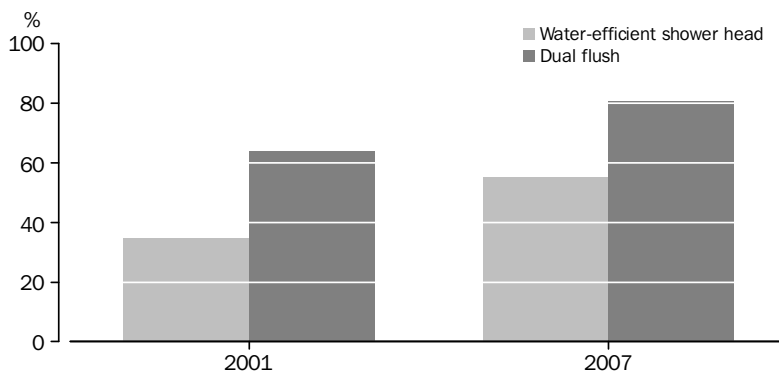
Increasing numbers of households have installed water conserving devices, including dual-flush

toilets and reduced-flow shower heads. In 2007, 81% of households had at least one dual-flush toilet, up from 64% in 2001. At least one water-efficient shower head was installed in the dwellings of more than half of Australian households (55%), up from 35% in 2001 (graph 2.19).

The most common source of water for Australian households is mains water (graph 2.20). The percentage of Australian households (93%) that sourced their water from the mains/town supply has remained steady between 1994 and 2007. Nearly all (99%) of households in capital cities were connected to mains/town water in 2007, compared with 85% of households outside the capital cities.

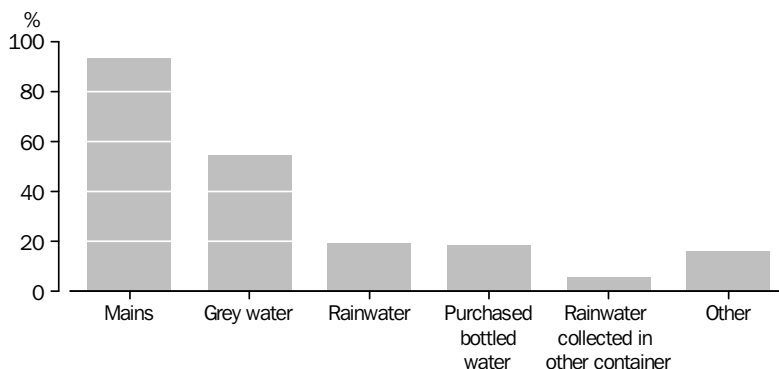
Although the majority of Australian dwellings have mains/town water supply, other households

**2.19 HOUSEHOLDS WITH WATER CONSERVATION DEVICES**



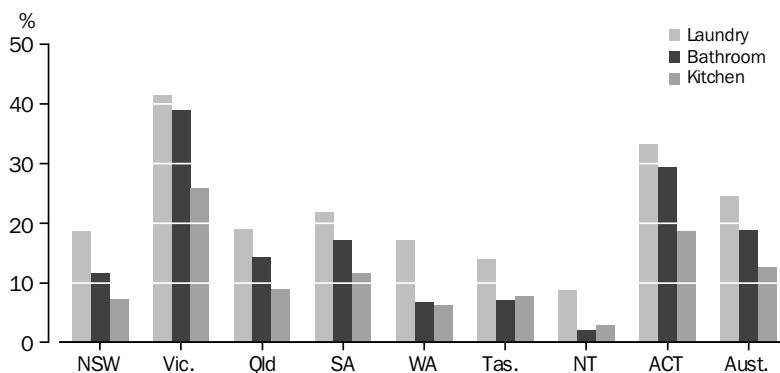
Source: *Environmental Issues: People's Views and Practices (4602.0)*.

**2.20 SOURCES OF WATER FOR HOUSEHOLDS**



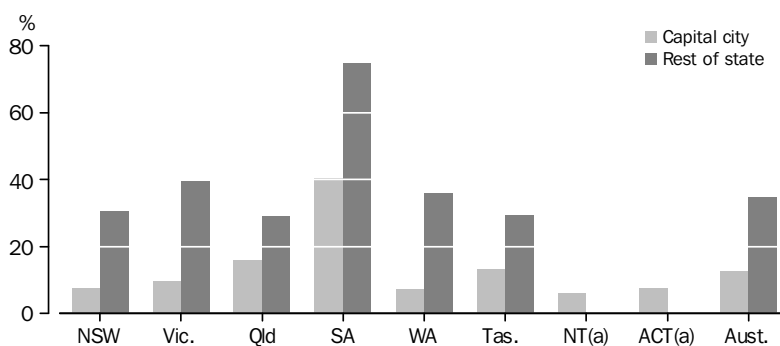
Source: *Environmental Issues: People's Views and Practices (4602.0)*.

### 2.21 WHERE HOUSEHOLDS REPORTED COLLECTING GREY WATER



Source: *Environmental Issues: People's Views and Practices (4602.0)*.

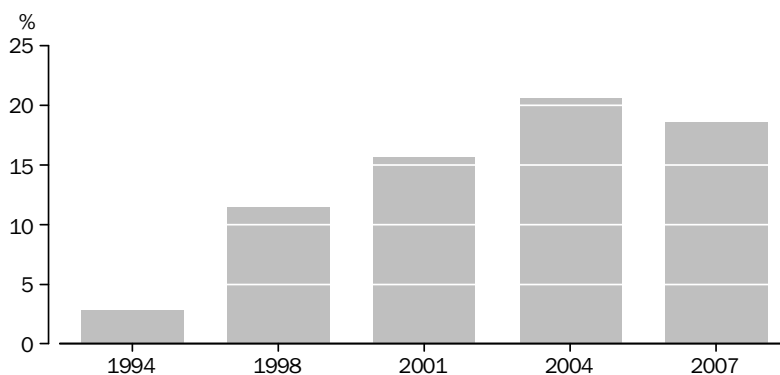
### 2.22 DWELLINGS WITH RAINWATER TANKS INSTALLED



(a) NT and ACT data refers to whole of territories.

Source: *Environmental Issues: People's Views and Practices (4602.0)*.

### 2.23 PURCHASED BOTTLE WATER AS A SOURCE OF WATER



Source: *Environmental Issues: People's Views and Practices (4602.0)*.

rely on rainwater tanks, bores or wells and water from rivers, creeks and dams. Some households supplement their water supply by collecting water (in containers other than tanks) or by using grey water.

A substantial proportion of Australian households collected grey water for reuse inside and outside the dwelling. Almost one-quarter (24%) of Australian households reported collecting grey water in the laundry, 19% in the bathroom and 13% in the kitchen (graph 2.21).

More than one-fifth (21%) of all households reported that their dwelling had a rainwater tank (graph 2.22). A greater proportion of dwellings in areas outside capital cities had a rainwater tank (35%) compared to those in capital cities (12%).

Saving water was the main reason (42%) reported by Australian households for why they had installed a rainwater tank. Other reasons for installing a rainwater tank were 'not connected to mains or town water' (27%) and 'concerns about the quality of other sources of water or they prefer rain water' (20%).

Purchased bottled water was reported as a source of water by about one-fifth (19%) of households. The proportion of households reporting purchased bottled water as a source rose steadily from 3% in 1994 to 21% in 2004, but then fell to 19% in 2007 (graph 2.23).

## Waste generation and disposal

More than two-thirds (69%) of Australian adults were concerned about the accumulation and disposal of household waste, according to an ABS survey in 2007–08. Australia's growing economy and its increasing use of energy and other resources have brought prosperity and wellbeing to many Australians. However, as a result more waste is produced than ever before. Associated with this has been an increase in waste diversity, toxicity and complexity, including electronic waste – e-waste – as one of the fastest growing types of waste (ABS, 2006).

In 2006–07, Australians generated nearly 44 million tonnes of solid waste, or 2,080 kilograms of waste per person (table 2.24).

### 2.24 ESTIMATED WASTE GENERATION—2006–07

State/territory	Total	Disposed	Recycled	Per	Diversion
	generated			person(a)	
	'000 t	'000 t	'000 t	kg	% t
New South Wales	15 360	7 365	7 995	2 230	52
Victoria	10 285	3 925	6 360	1 980	62
Queensland	8 081	4 302	3 779	1 930	47
South Australia	3 318	1 144	2 173	2 090	66
Western Australia	5 247	3 539	1 708	2 490	33
Tasmania	521	446	75	1 056	—
Northern Territory	181	151	30	841	—
Australian Capital Territory	784	197	587	2 310	75
Australia	43 777	21 069	22 707	2 080	52

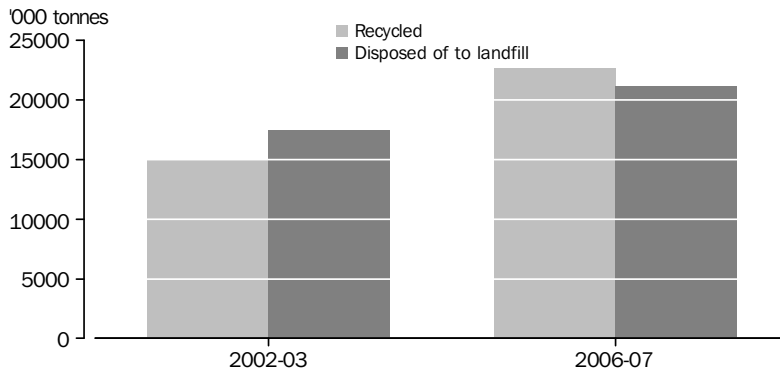
— nil or rounded to zero (including null cells)

(a) Figures for 'Kilograms per person' for Tasmania and the Northern Territory are estimated based on figures from the National Waste Overview.

Note: 1. There are differences between jurisdictional definitions, classifications and methodologies for measuring waste data which may also cover different materials. Comparative use of these data may therefore be inappropriate and should only be done with caution. 2. Gaps in the Tasmanian and Northern Territory recycling data for Municipal solid waste (MSW), Commercial and Industrial (C&I) and Construction and Demolition (C&D) waste mean it is not possible to provide diversion rates for these jurisdictions. NT data are for Darwin City council's MSW and the 30,000 recycling figure is the quantity of green waste generated in cubic metres. 3. New data for the Northern Territory for the period 2006–07 were identified in November 2009 but time did not allow these data to be incorporated into this document. The new data show that total waste generated in the NT was 374,000 tonnes, waste disposed was 361,000 tonnes and waste recycled was 13,000 tonnes (all of which was derived from MSW and excludes listed wastes). 4. Figures for Victoria represent the amount of waste accepted at licensed Victorian landfills, excluding material used as cover. These figures from Victoria were calculated by taking the tonnes of material received at landfills (including cover material sourced off site) and reducing this by 15 per cent to allow for cover material. Likewise, figures for cover fill is excluded from figures for Tasmania.

Source: Environment Protection and Heritage Council (EPHC), National Waste Overview 2009.

## 2.25 WASTE DISPOSAL AND RECYCLING, ALL SECTORS, AUSTRALIA



Source: Environment Protection and Heritage Council (EPHC), National Waste Overview 2009.

Waste generation has increased, especially in the past decade, with increases in both landfill disposal and recovery. The amount of solid waste generated increased by 11.4 million tonnes or (35%) from 32,379,000 tonnes in 2002–03 to 43,777,000 in 2006–07. In 2006–07, of the total waste generated, 48% was disposed to landfill and the remainder was recycled (graph 2.25). This compares with 54% going into landfills in 2002–03 (EPHC, 2009; Hyder, 2009).

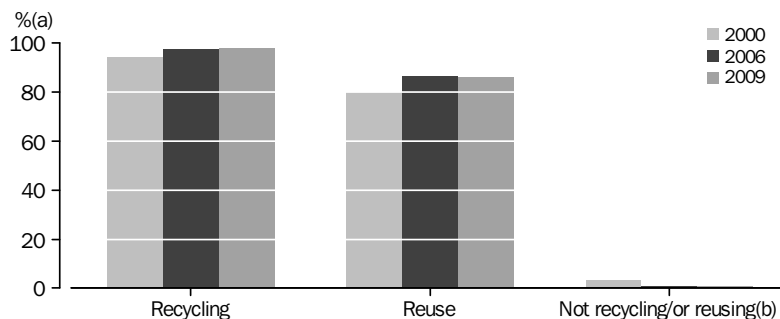
### Household waste and recycling practices

Household recycling is influenced by three main factors: the quantity or volume of recyclable material generated by a household; accessibility/availability of households to disposal facilities; and household interest. The growth in

recycling may be attributed to a number of factors including the provision of new and improved municipal kerbside collection services (increased collection frequency, better collection containers and a wider range of materials or products collected), community education programs, higher landfill levies in many states and territories and the development of markets for recycled materials (ABS, 2006).

In March 2009, almost all households (99%) in Australia recycled and/or reused at home. Of these, 98% of households had recycled, and 86% had reused waste (graph 2.26). All states and territories recorded a household recycling rate greater than 95%. Queensland, however, recorded a drop in waste reuse from 92% in 2006 to 87% in 2009.

## 2.26 RECYCLING/REUSE OF WASTE BY HOUSEHOLDS

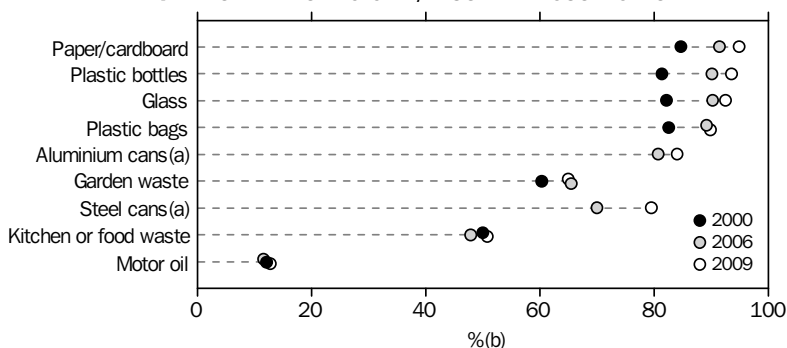


(a) Proportion of total households.

(b) From 2006, data for 'Not recycling or reusing' too small to show.

Source: Environmental Issues: Waste Management and Transport Use (4602.0.55.002).

### 2.27 WASTE ITEMS RECYCLED/REUSED BY HOUSEHOLDS



(a) Data not available for 2000. (b) Proportion of total households.

Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

The high levels of recycling and reusing activity largely reflects the extent of recycling services or facilities available to households. For example, paper products (including cardboard or newspapers); plastic products (bottles and bags) and glass were the most recycled waste materials in Australia. These materials are recycled through kerbside recycling services, to which about 91% of Australian households currently have access (graph 2.27).

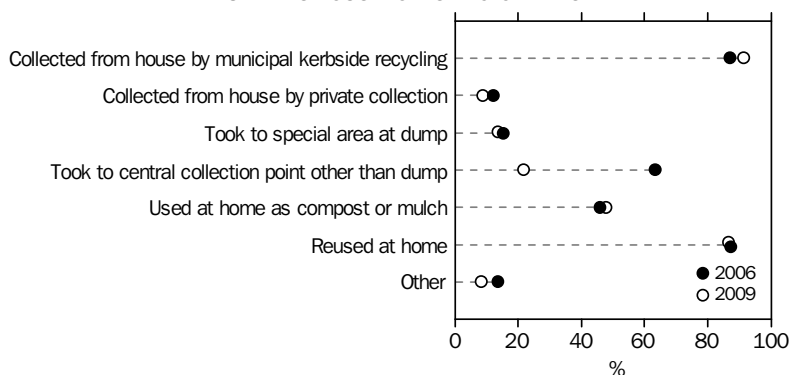
Compared with 2006, paper products continued to be the most recycled waste material in Australia (graph 2.27). In 2009, about 99% of households recycled paper products in the Australian Capital Territory, 98% in Victoria and 96% in New South Wales. Paper product recycling was lowest in Queensland (92%). Significant increases in paper product recycling was noted in

the Northern Territory (74% in 2006 to 93% in 2009).

Plastic bottles were the next most frequently recycled waste material by 94% of Australian households. Plastic bottles were the most recycled waste material in the Australian Capital Territory (99%) and the Northern Territory (96%). In Tasmania, glass was the most recycled waste material (94%), while in South Australia, cans were the most recycled waste material (96%).

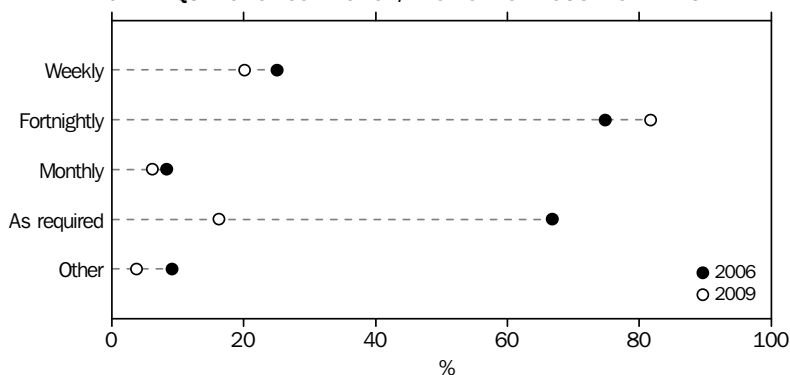
There have been slight changes to the way households recycle waste. Australians were less likely to have waste collected from the house by private collection, take it to a special area at the dump or waste transfer station, take it to a central collection point other than a dump or waste

### 2.28 WAYS HOUSEHOLDS RECYCLE WASTE



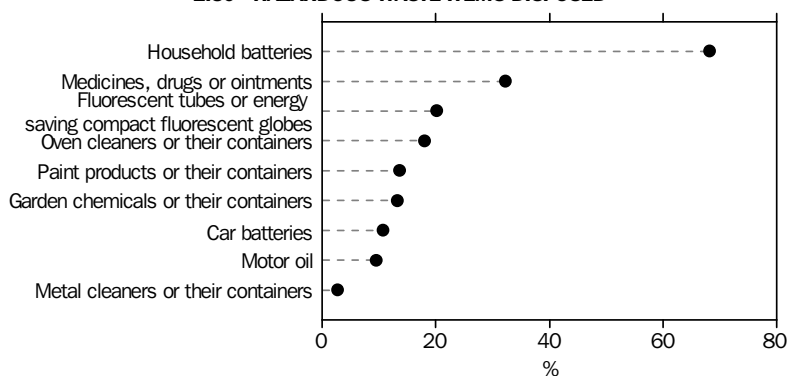
Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

### 2.29 FREQUENCY OF COLLECTION/DROP-OFF OF HOUSEHOLD WASTE



Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

### 2.30 HAZARDOUS WASTE ITEMS DISPOSED



Source: *Environmental Issues: Waste Management and Transport Use (4602.0.55.002)*.

transfer station or dispose by other means in 2009 than they were in 2006. This can be partly attributed to the increase in Australian households' use of municipal kerbside recycling, which has increased from 87% in 2006 to 91% in 2009 (graph 2.28).

However, nearly a quarter of households (23%) disposed of electronic equipment and more than half of households (51%) disposed of household appliances through collection with non-recycled garbage in the 12 months prior to March 2009.

Across Australia, there has been a shift in the frequency of collection or drop-off of recyclable items since 2006. The frequency for weekly collection or drop-off service has reduced from 25% in 2006 to 20% in 2009. On the other hand, fortnightly disposal frequency nationally has

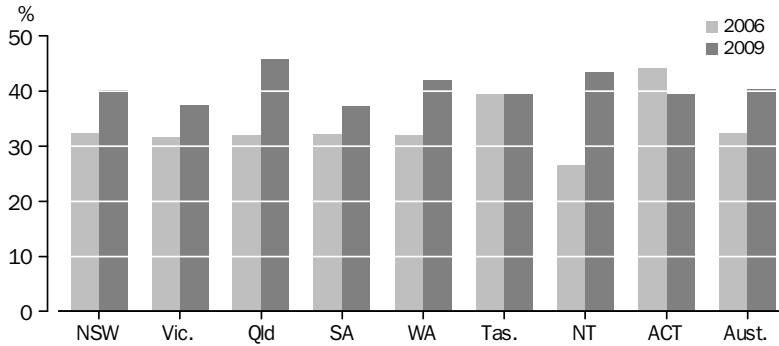
increased from 75% in 2006 to 82% in 2009.

Another significant change was the proportion of households across Australia recycling on an 'as required' basis, down from 67% of households in 2006 to only 16% in 2009 (graph 2.29).

The most common reason reported by households for not recycling or reusing any waste items was 'does not use any or enough materials to warrant recycling or not appropriate' (95%). One in seven households (14%) reported they were 'not interested/too much effort/cost' and 13% reported 'no service/facilities provided' as a reason. One-tenth of Australian households (10%) offered no reason for not recycling.

Of all the hazardous waste items disposed of, household batteries were the most common, with 68% of households disposing of this item

### 2.31 AWARENESS OF HOUSEHOLD WASTE DISPOSAL SERVICES AND FACILITIES IN AREA



Source: *Environmental Issues: People's Views and Practices (4602.0)*.

during the 12 months to March 2009 (graph 2.30). The proportion of households disposing of household batteries has been steadily increasing since 2000, when 57% of households reported disposing of this item. The highest disposers of household batteries were the Northern Territory (88% of households), followed by the Australian Capital Territory (73%).

Medicines, drugs or ointments were the second most commonly disposed hazardous waste item. Just under one-third (32%) of Australian households disposed of these items, with the Australian Capital Territory being the highest at 38% of households.

Hazardous waste was disposed of in a number of different ways. The most common way of disposal was to have the waste collected from the house with usual (non-recycled) garbage, accounting for 82% of households, followed by taking the items to a business or shop/central point, with 43% of households using this method.

Awareness of hazardous waste disposal services in the local area has increased across Australia from 2006, when 32% of households were aware compared to 40% in 2009. The largest increase occurred in the Northern Territory, where awareness rose from 27% to 43%, and in Queensland (32% to 46%) (graph 2.31).

## Environmental assets

The economy has a complex relationship with the environment. The environment provides the raw

materials and energy for the production of goods and services that support people's lifestyles. The environment also sustains damage through the activities of households and businesses. While this damage is well documented in the environmental literature, it generally falls outside the scope of the national accounts for an economy.

The national accounts measure of GDP includes the value of goods and services produced and the income generated through the use of environmental assets, but they do not reflect the economic cost of depleting environmental assets or the damage that arises from economic activity that is not remediated. In recognition of this asymmetry, the Australian Bureau of Statistics (ABS) has examined how to capture the environmental damage sustained in servicing the Australian economy and the longer-term sustainability in exploiting its environmental assets.

This section discusses how the environment is treated in the Australian national accounts and gives a broad overview of some environmental accounting undertaken by the ABS to capture certain economic costs to the environment.

## Environmental assets in the Australian national accounts

For an asset to be included in the Australian national accounts, it must have an identifiable owner, and the owner must be able to derive an economic benefit from holding or using the asset. Environmental assets that could be considered



economic assets for the purposes of a national account include subsoil assets, land, forests, water, and fish stocks in open seas that are under the control of an economic agent, often the government.

Environmental assets such as the atmosphere are outside the scope of the national accounts, as they do not have an identifiable owner who can derive an economic benefit from their use. This is not to suggest that these assets are of no value. On the contrary, many environmental assets are essential to life itself. However, even if they fell within the definition of an economic asset, the valuation techniques available to measure such assets tend to be arbitrary and controversial.

There are four environmental assets identified in the Australian national and sector balance sheets: land; significant subsoil assets; plantation timber; and native standing timber available for exploitation. Land valuations are available through administrative sources. Net present value techniques, which take into account current production rates, prices, costs, and discount rates are used to value both subsoil and native forest assets. Plantations are included in the balance sheet as inventories because timber growth is controlled by an economic entity. Water and fish stocks have not been included on the Australian national balance sheet to date due to a lack of available data.

The Australian national balance sheet recorded \$8,107b worth of assets at 30 June 2008, of which \$3,544b (44%) were economic environmental assets (table 2.32). The value of environmental assets grew strongly in the period 1998 to 2008, with an average annual growth rate of 12%.

Land accounted for 89% of the value of Australia's environmental assets included in the national balance sheet as at June 2008 (table 2.33). The value of land increased more than two and a half times in the period 1998 to 2008 – an average annual growth of 12%. Subsoil assets, which account for 11% of the assets, more than doubled in value over the period. In contrast, native and plantation timber, which account for less than 1% of Australia's environmental assets, saw relatively modest growth.

The strong growth in the value of Australia's environmental assets was mainly due to rising prices. In the period 1998 to 2008, average annual growth in volume (or 'real' terms) was only 1%. Average annual growth in the volume of land was 1% in the period, while subsoil average annual volume growth was 3%. Table 2.34 indicates that real growth in the stock of environment assets has been quite modest in the period, and that the strong growth in values can be attributed mainly to price effects.

### 2.32 ASSETS, Current prices —30 June

	1998		2008		Average annual change %
	\$b		\$b		
Financial	300		1 026		13.1
Buildings and structures	1 265		2 854		8.5
Machinery and equipment	303		476		4.6
Other produced	122		197		5.0
Other non-produced	1		10		24.8
Environmental	1 193		3 544		11.5
<b>Total assets</b>	<b>3 183</b>		<b>8 107</b>		<b>9.8</b>

Source: Australian System of National Accounts, 2007–08 (5204.0).

### 2.33 ENVIRONMENTAL ASSETS, Current prices—30 June

	1998		2008		Average annual change %
	\$b		\$b		
Rural land	93		263		11.0
Other land	950		2 885		11.8
Oil and gas	81		139		5.5
Other subsoil	61		246		15.0
Native standing timber	2		2		2.1
Plantation standing timber	7		9		1.5
<b>Total</b>	<b>1 193</b>		<b>3 544</b>		<b>11.5</b>

Source: Australian System of National Accounts, 2007–08 (5204.0).

### 2.34 ENVIRONMENTAL ASSETS, Volume/Real(a)—30 June

	1998		2008		Average annual change
	\$b	\$b	\$b	%	
Land	2 694	2 994			1.1
Subsoil	253	339			3.0
Native standing timber	2	2			-0.7
Plantation standing timber	9	9			1.5
<b>Total</b>	<b>2 959</b>	<b>3 344</b>			<b>1.2</b>

(a) Reference year is 2006-07.

Source: Australian System of National Accounts, 2007-08 (5204.0).

### Measuring depletion

*Depletion is defined in the U.N. System of National Accounts 1993 as the:*

... reduction in the value of deposits of subsoil assets as a result of the physical removal and using up of the assets, ... the depletion of water resources, and the depletion of natural forests, fish stocks in the open seas and other non-cultivated biological resources as a result of harvesting, forest clearance, or other use.

Depletion in an economic sense results because the value of the resource stock has been lowered through its use in a productive activity, and the use has reduced the asset's ability to produce an income stream in the future. In this sense, depletion is analogous to depreciation of produced assets whereby the current value of the stock of fixed assets declines through normal use, wear and tear and foreseen obsolescence.

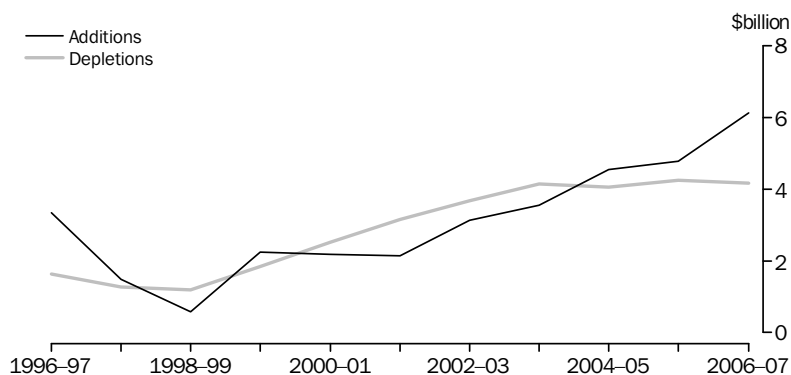
Physical depletion (or extraction) may not necessarily equate to economic depletion in cases where asset values are low or the resource life is long. While the physical dimension of depletion can be fairly readily observed in practice, its value cannot. This is because the mineral or other natural resource product is not what is being valued – rather it is the decline in the value of the mineral asset below the ground or the standing timber in the forest. Generally, one has to resort to capital theory to undertake this valuation.

### Subsoil assets

The economic depletion of minerals and fossil fuels in any one year is the change in the value of the asset between the beginning and end of the year arising purely from the extraction of these natural resources. An 'addition' occurs when previously unknown stocks of minerals are discovered and delineated, or previously subeconomic stocks become economic because of changes in prices or mineral extraction techniques. An 'addition' can also be negative. For example, if mineral prices fall and previously economic stocks become subeconomic, the owner can no longer derive an economic benefit from the asset so it is excluded from asset values. In the Australian national accounts, the value of a new discovery is not in itself considered as output or income because it is a 'gift of nature'. Similarly, reclassification of the economic status of known stocks is considered to be an 'other change in volume', not production or income.

Graph 2.35 shows economic depletions of minerals and fossil fuels increased at a relatively constant rate from 1999 to 2000 before levelling

2.35 SUBSOIL ADDITIONS AND DEPLETION



Source: ABS data on request, Australian System of National Accounts.

off in 2004–05 and 2005–06, whereas 'additions' are erratic as subsoil discoveries can be both substantial and sporadic, for example, the sharp rise in 2006–07 was mainly attributed to major finds in copper resources. The result is that in some years more subsoil resources are added than are depleted while in other years, the reverse is true. In some years, depletions and 'additions' are more or less equal in value.

## Land

If land is used sustainably, it has an infinite life and, therefore, no adjustment for economic depletion is required. However, where land is being degraded due to economic activity, an adjustment to income for land degradation is applicable. In the context of economic depletion used here, land degradation represents the year-to-year decline in the capital value of land resulting from economic activity after adjusting for price changes.

Changes in the value of land can be determined from data on market values or land rates data. However, data for land values are affected by a host of factors other than changes in productive capacity from the impact of land degradation, including inflation, technological advances and changes in land use due to re-zoning, subdivision and 'lifestyle' considerations.

Two national studies used different approaches to measuring economic losses due to land degradation. One used a farm survey to estimate the extent of land degradation on farms. Combining data from the survey with land value data, regression techniques were used to

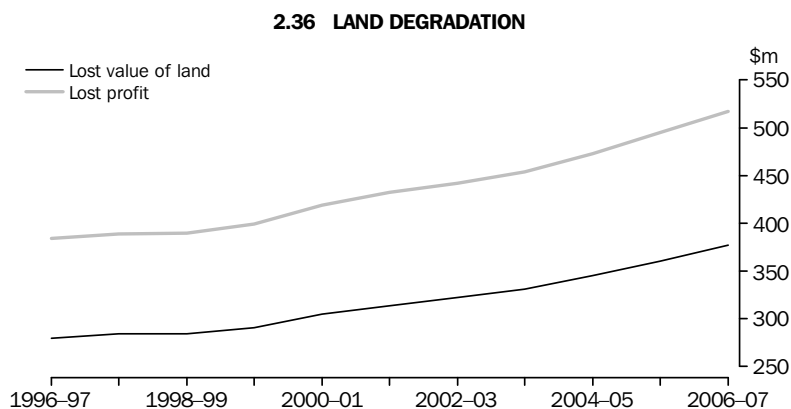
estimate that the difference in the capital value of farms with and without degradation was approximately \$14b in 1999. This represents the total accumulated value of losses in land value due to degradation. The other – the National Land and Water Resources Audit - used models to estimate the 'yield gap', that is, the difference between profits with and without soil degradation. Lost profit at full equity due to salinity, sodicity and acidity was estimated as \$3b in 1996–97.

In concept, these two approaches can be reconciled because the net present value of future lost profits should be equal to the decline in the capital value of land due to degradation. The ABS has used the data from these studies to produce estimates of the incremental effect of land degradation on the value of land and the lost profits from agricultural production each year. The results are presented in graph 2.36.

## Forest assets

Forests are renewable biological resources. In the national balance sheet, forests are depicted as two types – old growth native forests and plantations. The valuation of the depletion of renewable assets presents a different set of issues to valuation of non-renewable assets as it may be possible to replace, over time, the part of the asset that is used in the current period. Where a forest is harvested sustainably, no depletion adjustment is required.

Estimates for the economic depletion of native forests are not available. However, given the value of native forests on the national balance sheet is



Source: ABS data on request, Australian System of National Accounts.

\$2b compared with \$385b for subsoil assets, it is expected that depletion will have a relatively insignificant effect on the overall value of natural resources. This is premised on a narrow economic view that does not account for damage to intrinsic non-monetary values such as ecosystem services, biodiversity and aesthetic/recreational values.

### Applying environmental accounts depletion estimates

There is currently an asymmetry in the Australian national accounts between the treatment of produced assets, such as buildings, and environmental assets. Depreciation of produced assets (termed consumption of fixed capital (COFC) in the national accounts) is deducted to derive various 'net' income measures in the national accounts such as net domestic product (NDP), net operating surplus (NOS), net national income and net saving. No similar deduction is made for environmental assets when they are used up or degraded as a result of economic activity. The net measures thus fall short of being sustainable concepts of income, although they are superior to the various 'gross' measures in the Australian national accounts in this respect.

International discussion on the treatment of renewable and non-renewable resources in the

environmental accounts concluded that reappraisals and discoveries of mineral and energy resources are not the result of productive activities. Non-renewables should be treated as a volume change to the stock of resources. Subsoil discoveries therefore do not form a part of production and income. Additions to renewable resources need to be offset against the harvest of these resources.

The experimental estimates derived for the value of depletions of subsoil assets and the degradation of agricultural land are indicative of adjustments that could be made to the national accounts in the context of a satellite account and are shown in table 2.37. Depletion adjustments unambiguously lower the net values. If the value of discoveries is included in income in place of the value of mineral exploration, the net effect of that adjustment can be positive or negative. These estimates will be different to those previously published due to the treatment of subsoil additions as other volume changes to assets and not as a factor of production.

Adjusting the Australian national accounts for depletion also affects growth rates. As table 2.38 shows, the adjustments have impacts of similar magnitude (+/-0.1%) on the growth rates of NDP.

#### 2.37 PRODUCTION ADJUSTED FOR DEPLETION AND ADDITIONS, CURRENT PRICES

	2002-03	2003-04	2004-05	2004-06	2006-07
	\$m	\$m	\$m	\$m	\$m
Subsoil depletion	3 686	4 146	4 067	4 253	4 157
<i>plus</i>					
Land degradation	322	331	345	360	377
<i>equals</i>					
Gross depletion adjustment	4 008	4 477	4 412	4 613	4 534
GDP	781 675	841 351	897 642	967 454	1 045 674
<i>less</i>					
Consumption of fixed capital	121 521	128 350	134 927	146 126	159 102
<i>equals</i>					
NDP	660 154	713 001	762 715	821 328	886 572
<i>less</i>					
Gross depletion adjustment	4 008	4 477	4 412	4 613	4 534
<i>equals</i>					
Depletion adjusted NDP	656 146	708 524	758 303	816 715	882 038

Source: ABS data available on request, Australian System of National Accounts.

**2.38 CHANGES IN PRODUCTION GROWTH AFTER ADJUSTMENT FOR DEPLETION AND ADDITIONS,  
Current prices**

	2002-03	2003-04	2004-05	2005-06	2006-07
	%	%	%	%	%
GDP	6.2	7.6	6.7	7.8	8.1
NDP	6.4	8.0	7.0	7.7	7.9
Depletion adjusted NDP	6.3	8.0	7.0	7.7	8.0
Net change in NDP growth	-0.1	—	0.1	—	0.1

— nil or rounded to zero (including null cells)

Source: ABS data available on request, Australian National Accounts.

## Households and renewable energy

While industry uses most of the energy in Australia, household energy consumption also has considerable implications for the environment, depending on the amount and type used. The main environmental issues associated with energy use include natural resource depletion, pollution and greenhouse gas emissions.

Household energy consumption is an important contributor to greenhouse gas emissions, particularly because of Australia's reliance on fossil fuels (e.g. coal, oil, gas) for electricity generation. While coal and gas are the lowest cost fuel sources for electricity in Australia, they have much higher greenhouse gas emissions than renewable energy sources.<sup>1</sup> The residential sector accounted for nearly one-tenth (9%) of total greenhouse gas emissions in 2007, mostly from energy use. Between 1990 and 2007, greenhouse gas emissions for this sector (excluding transport) grew by 28%.<sup>2</sup>

Renewable energy sources, such as solar, hydropower, biomass and windpower, are naturally replenished and produce relatively few greenhouse gases. In 2007–08, about 5% of total primary energy came from renewable sources, including nearly three-quarters from biomass (72%), 15% from hydro-electricity and 7% from solar.<sup>3</sup>

Households have a number of options for renewable energy sources, including installing

small renewable generation units, for example, solar photovoltaic systems that convert sunlight directly into electricity, or more commonly, using wood or solar hot water systems. Another way is to sign up to GreenPower, whereby people can pay extra for electricity that is generated from renewable sources that feed into the electricity grid.

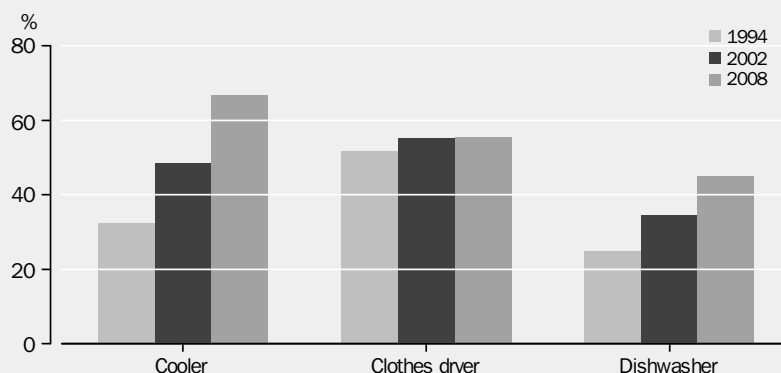
### Changes in household energy use

Household energy consumption for cooking, heating/cooling, hot water and running appliances increased by 30% between 1990–91 and 2007–08.<sup>4</sup> An increasing population, more appliances and IT equipment per household and bigger homes, have contributed to this growth.

The size and characteristics of people's homes affect household energy use and greenhouse gas emissions. For example, an increase in the amount of floor space will generally increase the amount of energy required to heat and cool a home. In 2008, more than one-third (37%) of separate houses had four or more bedrooms. More than three-quarters (77%) of all households used a heater and more than two-thirds (67%) used a cooler (graph 2.39).

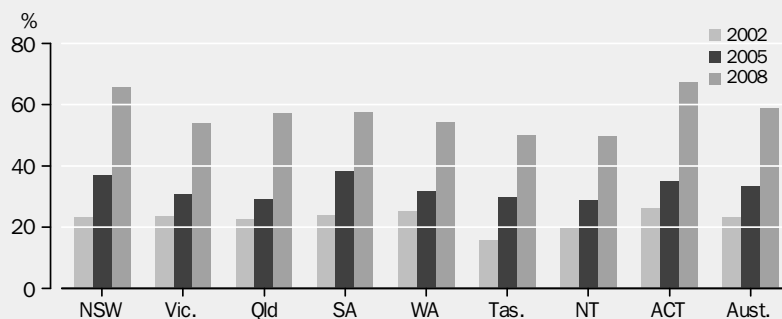
Household use of space heaters and coolers is the major contributor (41%) to household energy use. Water heating (24%) and other appliances (13%) were also significant users of household energy. These top three energy uses produced a

**2.39 HOUSEHOLDS WITH COOLERS, CLOTHES DRYERS, DISHWASHERS**



Source: *Environmental Issues: Energy Use and Conservation, 2008 (4602.0.55.001)*.

## 2.40 ENERGY SAVING LIGHTS(a) IN DWELLINGS



(a) Excludes fluorescents. Includes people's own perception of energy saving lights e.g. low voltage halogen, etc.

Source: *Environmental Issues: Energy use and Conservation, 2008* (4602.0.55.001).

combined 64% of the household sector's greenhouse gas emissions in 2005.<sup>5</sup>

Householders have increased their use of energy saving measures in their homes. In 2008, 59% of households had energy saving lighting installed (up from 33% in 2005) (graph 2.40); and energy star ratings were the main household consideration when replacing refrigerators, freezers, dishwashers and clothes dryers. Counteracting this, graph 2.39 shows more households now own coolers (66% in 2008 up from 35% in 1999) and dishwashers (45% in 2008 up from 30% in 1999) and other appliances, such as LCD and plasma televisions, the latter using almost three times the amount of energy compared to a standard television.<sup>6</sup>

## Types of energy

### Electricity

Electricity is the main energy source used in people's homes. In 2007–08, about half (49%) of the energy used by households was sourced from electricity. Household electricity consumption rose to 210 petajoules (PJ) in 2007–08, up 48% from 1990–91 (ABARE, 2009).

In March 2008, electricity was the primary source throughout Australia for household cooking (three-quarters of ovens used electricity and more than half (56%) of cooktops) and for hot water systems (46%). There has been a fall in the use of electricity for hot water systems between 2002 and 2008 from 61% to 46%.

Of those homes with heaters, electricity was the main source of energy for space heating (45%), followed by gas (41% for mains gas and LPG/bottled together) and wood (13%).

### Natural gas

Natural gas is the second most common source of energy used in the home, used by more than six in ten households (61%) in 2008. In total, households used 137 PJ of natural gas in 2007–08, equivalent to almost a third (32%) of total household energy use (ABARE, 2009).

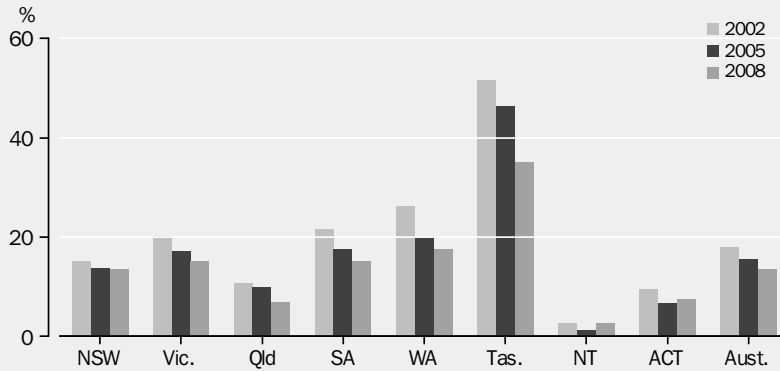
For almost one in three Australian households (31%), gas (mains or LPG/bottled) was the main source of energy for space heating and 37% used gas for hot water systems. In the main gas-producing states of Victoria and Western Australia, gas was used as an energy source in nine out of ten households (90% and 87% respectively, compared with six out of ten households nationally).

### Wood

Used primarily as a source of heating, wood use by households has declined 26% in the last 10 years, from 82 PJ in 1997–98 to 60 PJ in 2007–08 (ABARE, 2009).

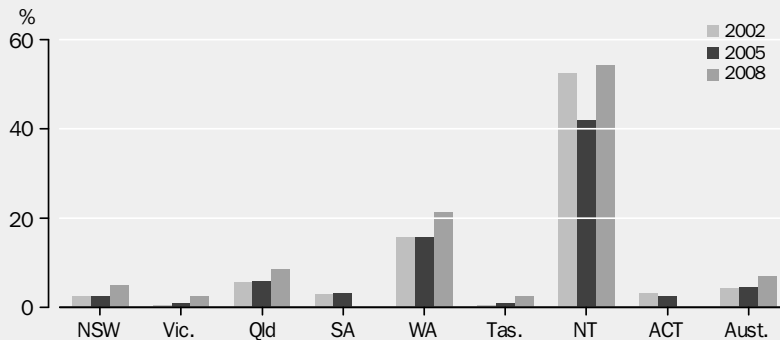
In 2008, 13% of Australian households used wood as a source of energy in the home. More than one-third (35%) of households in Tasmania used wood as an energy source, a decrease from more than half (52%) in 2002 (graph 2.41). Due to air pollution concerns, households have been encouraged to stop using wood for heating or to

## 2.41 WOOD, USE IN DWELLINGS



Source: *Environmental Issues: Energy Use and Conservation, 2008 (4602.0.55.001)*.

## 2.42 SOLAR HOT WATER HEATING(a) - USE IN DWELLINGS



(a) Solar hot water and solar-photovoltaic. 2008 data for SA and ACT not available for publication.

Source: *Environmental Issues: Energy Use and Conservation, 2008 (4602.0.55.001)*.

convert open fires to slow combustion fires, which are more energy efficient and produce less greenhouse emissions than open fires. Firewood collection can have a detrimental effect on Australia's native wildlife, as dead trees and fallen timber provide habitat for a diverse range of fauna including a number of threatened species.<sup>7</sup>

### Solar

A range of government grants and rebates have been made available to households in recent years to encourage people to use solar energy in the home. In 2008, 7% of households used solar energy to heat water, up from 4% of households in 2005. More than half of all households in the Northern Territory used solar energy to heat water (54%) – a much larger proportion than in

Western Australia (21%) and no other state or territory exceeded 10% (graph 2.42).

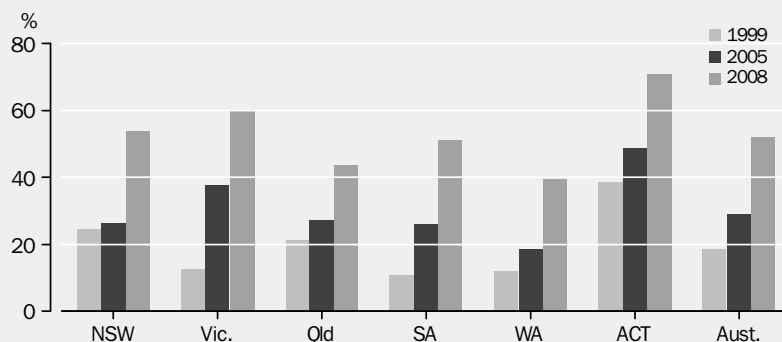
### GreenPower

GreenPower provides an option for people to pay a premium for electricity generated from renewable sources that is fed into the national power grid. GreenPower was first established in New South Wales in 1997 and since then has spread to other states and territories. By March 2009, just over 984,000 households were paying for GreenPower, up from 132,300 customers in March 2005.<sup>8</sup>

There has also been an increase in the awareness of GreenPower products in the past decade. In 1999, less than one-fifth (19%) of households were aware of GreenPower. Nearly a decade later,



## 2.43 GREEN POWER AWARENESS



Note: Data was not collected for Tas. and NT.

Source: *Environmental Issues: Energy Use and Conservation (4602.0.55.001)*.

this had risen to more than half (52%) of all households in 2008, including 5% who reported that they were already paying for GreenPower.

Households in the Australian Capital Territory had the highest rate of GreenPower awareness (71%, including 5% who were paying for GreenPower) while Western Australian households had the lowest awareness (39%) (graph 2.43).

### Definitions

Biomass is plant material, vegetation or agricultural waste used as a fuel or energy source. Biomass can also be processed to produce liquid biofuels (biodiesel) or a gas biofuel (biogas).

Hydro-electric power is electricity produced from the energy of falling water using dams, turbines and generators.

Solar/solar photovoltaic: Photovoltaics (PV) convert sunlight directly into electricity. Photovoltaic systems differ from solar hot water systems that absorb sunlight directly into the water-carrying tubes contained in the panel.

Wind turbines can be used to drive a generator to create electricity.

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## LAND, BIODIVERSITY, WATER AND AIR

Land, biodiversity, water and air are integral parts of Australia's environment and are inextricably linked. For example, changes in the health of inland waters, such as reduced river flow, can affect biodiversity, while changes in land use can affect inland waters and biodiversity. Not only do Australia's plants, animals and ecosystems sustain life, but they are also key contributors to economic growth as inputs to production.

The *Land and biodiversity* section outlines the unique biodiversity in Australia and the pressures placed on it, including the loss of habitat caused by land clearing and the adverse impact on native species by weeds and pests. It also examines measures for the conservation of biodiversity including the management of threatened species and the establishment of protected areas.

*Water* is fundamental to the survival of people and organisms and is a valuable resource for much of our economy, especially agriculture. Australia's rainfall varies considerably year-to-year, season-to-season and region-to-region and water shortages and drought conditions experienced throughout much of Australia in recent years have exacerbated the pressure on water supplies. The *Water* section in this chapter provides information about water availability, storage and use.

The *Air* section examines both greenhouse gas (GHG) emissions and air quality. Greenhouse gases are a natural part of the atmosphere and maintain the Earth's surface temperature at levels able to support life by trapping warmth from the Sun. However, human activities, especially burning fossil fuels (coal, oil, gas) increase concentrations of greenhouse gases in the atmosphere. The enhanced greenhouse effect from greenhouse gas emissions has been implicated in climate change. The major contributors to GHG emissions and Australia's progress towards meeting its obligations under the Kyoto Protocol are discussed in this section. The discussion on air quality also looks at air pollutants such as carbon monoxide, ozone (photochemical smog) and particulate matter, all of which can have deleterious effects on the health of humans and other organisms.

The chapter contains an article on Australia's most important food-producing region, the *Murray-Darling Basin*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Land and biodiversity

Biodiversity (or biological diversity) is the variety of all life forms on earth – the different plants, animals and micro-organisms, the genes they contain, and the ecosystems of which they form a part. Biodiversity is constantly changing. It is increased by genetic change and evolution and is reduced by processes such as habitat degradation and species extinction.

Australia's biodiversity is unique and globally significant, with Australia being home to many endemic plants and animals, that is, they are found nowhere else in the world. Australia is recognised as one of only 17 'mega-diverse' countries, with ecosystems of exceptional variety and uniqueness. This group of mega-diverse countries covers less than 10% of the global surface, but supports more than 70% of the earth's biological diversity.

Loss of biodiversity is considered by some as Australia's most serious environmental problem. Habitat degradation resulting from human activity has put many unique species at risk. The clearance of native vegetation is a significant threat to terrestrial biodiversity. Other threats to biodiversity include deterioration of soil and water quality, increased dryland salinity, the spread of weeds and feral pests and climate change. Although land clearing has continued since 1990, the rate of forest land conversion decreased by more than one-third or 182.6 thousand hectares (graph 3.1). The figures do not distinguish between the clearance of native or non-native vegetation.

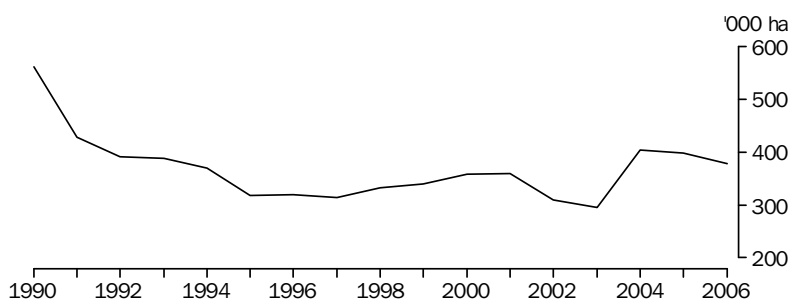
## Threatened species

The Australian Government administers biodiversity conservation through the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). This environmental legislation provides a framework and advice to protect and manage important flora, fauna, ecological communities and heritage places. The EPBC Act classifies listed threatened species into six categories: extinct; extinct in the wild; critically endangered; endangered; vulnerable; and conservation dependent.

Since the introduction of the EPBC Act, the number of listed threatened fauna has increased by 35% from 315 to 426. In September 2009, nearly half of the 120 mammals listed as threatened were classified as vulnerable, almost a third were more seriously threatened (endangered and critically endangered) and the remainder were presumed extinct. The number of endangered fauna species rose by 41% between 2000 and 2009 and the number of vulnerable fauna species increased by 20% over this period (graph 3.2). However, these increases may reflect taxonomic revisions and improved reporting in conservation status and do not necessarily mean a change in the conservation status of the fauna.

Table 3.3 shows that in 2009, 104 species of Australian flora and fauna were listed as extinct, and 1,643 species and 46 ecological communities were listed as endangered or vulnerable under the EPBC Act. An ecological community is a naturally occurring and unique group of plants and animals.

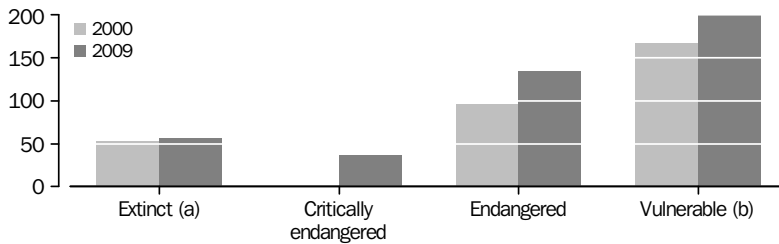
**3.1 LAND USE CHANGE: FOREST CONVERSION AND RECLEARING**



Notes: Forest conversion is land cleared for the first time. Reclearing is clearing of land previously cleared.

Source: Australia's National Greenhouse Accounts, National Inventory Report 2007, Vol 2, table 7.2.

### 3.2 THREATENED FAUNA SPECIES



(a) Includes category 'extinct in the wild'. (b) Includes category 'conservation dependent'.

Note: Data for 2000 can be revised, last viewed September 2009.

Source: Department of the Environment, Water, Heritage and the Arts, <<http://www.environment.gov.au/biodiversity>>

### 3.3 THREATENED SPECIES AND ECOLOGICAL COMMUNITIES, AUSTRALIA—2009

	Extinct	Extinct in the wild	Critically endangered	Endangered	Vulnerable	Conservation dependent	Total
	no.	no.	no.	no.	no.	no.	no.
Native species							
Fauna							
Fishes	—	1	3	16	25	3	48
Frogs	4	—	2	14	12	—	32
Reptiles	—	—	2	14	38	—	54
Birds	23	—	6	41	61	—	131
Mammals	27	—	4	35	54	—	120
Other animals	1	—	19	14	7	—	41
Total Fauna	55	1	36	134	197	3	426
Flora	48	—	89	523	664	—	1 324
Total species	103	1	125	657	861	3	1 750
Ecological communities	—	—	15	30	1	—	46

— nil or rounded to zero (including null cells)

Source: Department of the Environment, Water, Heritage and the Arts, <<http://environment.gov.au/biodiversity>>, last viewed September 2009.

### Parks and protected areas

Although Australia's biodiversity continues to be threatened by many factors, measures have been put in place to protect native flora and fauna. One such measure is a system of protected areas (the Natural Reserve System) that is dedicated to the protection and maintenance of biological diversity and of natural and cultural resources.

The development of a comprehensive, adequate and representative National Reserve System is the responsibility of the Commonwealth, state and territory governments as part of Australia's obligation under the United Nations Biodiversity Convention established in 1993.

Most national parks and other protected areas in Australia are declared and managed by state and territory governments, although some protected areas are managed by conservation or other groups. Declaration and management of Indigenous Protected Areas – Indigenous-owned land that is managed to protect its natural and associated cultural values – began in 1998.

The area of conservation reserves in each state and territory is recorded in the Collaborative Australian Protected Areas Database (CAPAD) using the World Conservation Union (IUCN) classification system of protected areas. The classification system comprises seven categories based on the main (or primary) management intent of protected areas.

### 3.4 TERRESTRIAL PROTECTED AREAS, AUSTRALIA—2006

IUCN			Area	Proportion(a)
Category	Primary management intent	no.	'000 ha	%
IA	Strict nature reserve: managed mainly for science	2 200.0	18 515.0	2.4
IB	Wilderness area	44.0	4 786.0	0.6
II	National Park: ecosystem conservation and recreation	828.0	36 148.0	4.7
III	National Monument: conservation of specific natural features	2 312.0	1 104.0	—
IV	Habitat/species management	2 149.0	2 926.0	—
V	Protected landscape/seascape	203.0	850.0	—
VI	Managed resource protected area	1 044.0	25 198.0	3.3
<b>Total</b>		<b>8 780.0(b)</b>	<b>89 529.0(c)</b>	<b>11.6</b>

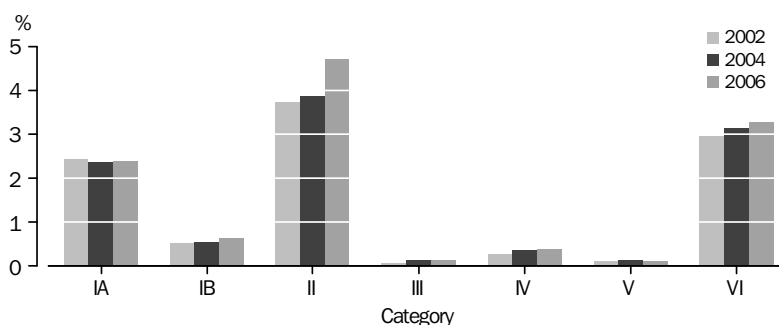
— nil or rounded to zero (including null cells)

(a) Proportion of the total land area of Australia, 768,826,956 ha

(b) Includes 20 Indigenous Protected Areas

(c) Includes Indigenous Protected Areas of 14,594,415 ha  
Source: Department of the Environment, Water, Heritage and the Arts, CAPAD, last viewed September 2009.

### 3.5 PROTECTED AREAS, as a percentage of Australia—2002–2006



Note: Data for category III and category V may be too small to show.

Source: Department of the Environment, Water, Heritage and the Arts, CAPAD, last viewed September 2009.

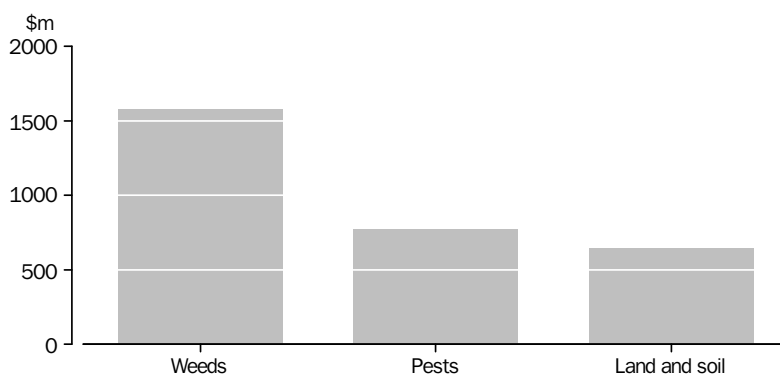
From 2004 to 2006, Australia's terrestrial protected areas increased by more than 8.6 million hectares and now extend across 89.5 million hectares or 12% of Australia. Table 3.4 shows the area of protected land in each category in 2006. Included in the 89.5 million hectares is 14.6 million hectares of Indigenous Protected Areas. These areas are actively managed by the Indigenous owners and rangers also work to protect biodiversity by controlling weeds, feral animals and bushfires along with visitor impacts, for all Australians.

The area protected for National Parks (category II) has increased by over 7 million hectares between 2002 and 2006 and now encompasses

almost 5% of the total land area of Australia. (graph 3.5).

The Australian Government's *Caring for our Country* program aims to expand the area protected within the National Reserve System to at least 125 million hectares by 2013 and expand Indigenous Protected Areas by between 8 and 16 million hectares. In addition, the programs aim to increase native habitat by at least one million hectares and reduce the impact of cane toads, camels, rodents, rabbits and weeds.

### 3.6 FARM EXPENDITURE ON NATURAL RESOURCE MANAGEMENT—2006–07



Source: ABS, *Natural Resource Management on Australian Farms, 2006–07* (4620.0).

### 3.7 WEEDS OF NATIONAL SIGNIFICANCE

Common name	State/territory weed found
Alligator Weed	ACT, NSW, Qld, Vic.
Athel Pine	NSW, Qld, NT, WA, SA, Vic.
Bitou bush/Boneseed(a)	NSW, Vic., Tas., SA, WA, Qld
Blackberry	ACT, NSW, Vic., Tas., SA, WA, Qld
Bridal Creeper	NSW, Vic., Tas., SA, WA, Qld
Cabomba	NT, NSW, Vic., Qld
Chilean Needle Grass	ACT, NSW, Vic., SA, Qld
Gorse	WA, SA, Qld, NSW, Vic., Tas.
Hymenachne	NT, Qld
Lantana	Qld, NSW, NT, SA, WA, Vic.
Mesquite	WA, NT, Qld, NSW, SA
Mimosa	NT, WA
Parkinsonia	NT, NSW, SA, WA, Qld
Parthenium weed	NT, Qld, NSW
Pond Apple	Qld
Prickly Acacia	Qld, SA, NT, WA
Rubber Vine	WA, Qld
Salvinia	NT, NSW, Vic. SA, WA, Qld
Serrated Tussock	ACT, NSW, Vic., Tas.
Willows(b)	Qld, NSW, ACT, Vic., Tas., SA

- (a) For the purposes of this list, the two taxa are treated as one.  
 (b) Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow.

Source: <<http://www.weeds.gov.au/weeds/lists/wons.html>> last viewed September, 2009.

### Invasive species

An invasive species is a non-indigenous species with an adverse impact on the habitats that it invades. Invasive species threaten valued environmental, agricultural or other social resources through the damage they cause. Invasive species include feral animals, marine pests, weeds, non-native insects and other

invertebrates, and diseases and parasites. These species can threaten native species, contribute to land degradation and reduce agricultural productivity.

The cost of weeds to Australian agriculture (impact and control costs) has been estimated at more than \$3.4 billion (b) annually (*Caring for our Country, Business Plan 2009–2010*). ABS data for 2006–07 show that farmers spent \$1.6 b controlling and preventing weeds, which was more than for pests (\$768 million (m)) and land and soil problems (\$649 m) combined (see graph 3.6). Weed management activities also proved the most time consuming with agricultural businesses undertaking, on average, 31 person days of effort on these activities. In comparison, 26 and 23 days were spent on managing pests and land and soil problems, respectively.

Weeds of National Significance is an agreed list of 20 problem weeds used as a guide for a coordinated national effort for addressing weed problems (see table 3.7). Selection of these species was made by the Australian government and all state and territory governments in 1999 based on environmental damage and economic impacts.

In Australia, the annual cost of pest species has been estimated at around \$720 million (*Counting the Cost, 2004*). Some invasive animals or pests were deliberately introduced to Australia, while others were accidentally imported. Table 3.8 lists the major pest species of concern which have been introduced into Australia.



### 3.8 INVASIVE INTRODUCED PESTS OF CONCERN

Category	INVASIVE SPECIES	
	Common name	Scientific name
Diseases, fungi, and parasites	Beak and feather disease	Psittacine circoviral
	Chytrid fungus of amphibian	Batrachochytrium dendrobatidis
	Mundulla Yellows	
	Root-rot fungus	Phytophthora cinnamomi
Feral animals	Cane toad	Bufo marinus
	European wild rabbit	Oryctolagus cuniculus
	European red fox	Vulpes vulpes
	Feral camel	Camelus dromedarius
	Feral cat	Felis catus
	Feral goat	Capra hircus
	Feral horse	Equus caballus
	Feral donkey	Equus asinus
	Feral pig	Sus scrofa
	Feral water buffalo	Bubalus bubalis
Insects and other vertebrates	European wasps	Vespula germanica
	Honeybees	Apis mellifera
	Red Fire Ant	Solenopsis invicta
	Yellow Crazy Ant	Anoplolepis gracilipes

Source: <<http://www.environment.gov.au/biodiversity/invasive/index.html>>, last viewed September, 2009.

The cane toad is an example of an introduced feral animal. It was introduced into Australia as a biological control against cane beetles that destroy sugarcane crops, but failed to control the cane beetles and became a major pest itself. Cane toads eat mainly insects, but also frogs, small mammals and snakes. Additionally, because they are poisonous, cane toads kill many animals that prey on them including goannas, quolls and birds. They are still spreading across Australia, continuing to migrate both west and south.

## Water

Water is critical for sustaining life. It performs essential functions within terrestrial and marine ecosystems and represents an important input into Australia's economy, particularly agriculture.

Long-term drought in many parts of Australia together with increasing evidence of the adverse

effects of increased water use on river health, has changed the way Australians regard water. Taking too much water out of Australia's river and groundwater systems can have detrimental economic and environmental consequences. These can impact biodiversity, causing declines in native animal and plant populations and reducing agricultural production (e.g. reduced availability of water for irrigation).

## Water management

The states and territories, along with the Australian Government, officially recognised the need to improve the efficiency of water use and the health of Australia's river and groundwater systems, with the signing of the National Water Initiative (NWI) in 2004, built on the Council of Australian Governments (COAG) framework for water reform signed in 1994. The NWI involves a range of reforms to the water industry, including improved water planning, water trading and

water accounting. The *Water Act 2007* established the Bureau of Meteorology as the major custodian of all water related data including collection, publication and implementation of water information standards. The Murray-Darling Basin Authority was also established under this Act, making it responsible for a national focus on water management in the Murray-Darling Basin.

Water markets are an important mechanism for allocating water efficiently and contributing to NWI goals of managing water to optimise economic, social and environmental outcomes. *The National Water Commission, Australian Water Market Report, 2007–08* estimated the value of transactions for traded water was \$1.68 billion, with 32,205 trades involving 2,515 gigalitres (GL) of water.

## Water availability

Water is principally made available to society from surface water in the form of rivers, lakes, reservoirs, dams, and rainwater tanks, and from underground aquifers in the form of wells and bores. The amount of water available has consequences for agricultural production, household and commercial/industrial requirements, and for those recreational facilities that are dependent on fresh water resources. Water availability is also critical for the maintenance of ecological systems, such as rivers, lakes, and wetlands.

The island continent of Australia is totally dependent on precipitation (rainfall and snow) for its water supply. Because Australia is the driest continent (after Antarctica), man-made water storage is critical in maintaining society's water supply. Water run-off from the land fills natural and man-made surface water storages and water seeping through the soil recharges groundwater supplies in aquifers. Recognising the connectivity between surface and groundwater resources, the NWI parties have agreed to manage connected systems as single resources.

Rainfall, run-off and water storage are examined in the following sections.

## Rainfall

Average annual rainfall varies considerably across Australia. Large areas have average annual rainfall of 600–1,500 millimetres (mm), a range similar to most European and North American averages.

But about half of the continent experiences average annual rainfall of less than 300 mm.

In recent years, many parts of Australia, notably the south-east of the continent, southern Queensland, and the Murray-Darling Basin, have experienced drought conditions, with consequent lowering of water storage levels.

In the 12 months from September 2008 to August 2009, highly populated areas in New South Wales and Victoria, including the Murray-Darling Basin were under stress, with below average rainfall. The south-east of Australia has been abnormally dry, while the north-east has been abnormally wet (map 3.9).

The drought conditions experienced across much of Australia are evident in a two year rainfall anomaly map (map 3.10). A rainfall anomaly map shows the deviation from the annual average rainfall. According to the Bureau of Meteorology, rainfall has been below average across much of south-west and south-east Australia since 1997, while the Murray-Darling Basin has experienced below average rainfall since 2002. These are critical agricultural areas in Australia.

## Run-off

Run-off of rainfall into water stores is affected mainly by topography, soil condition, and temperature, as follows:

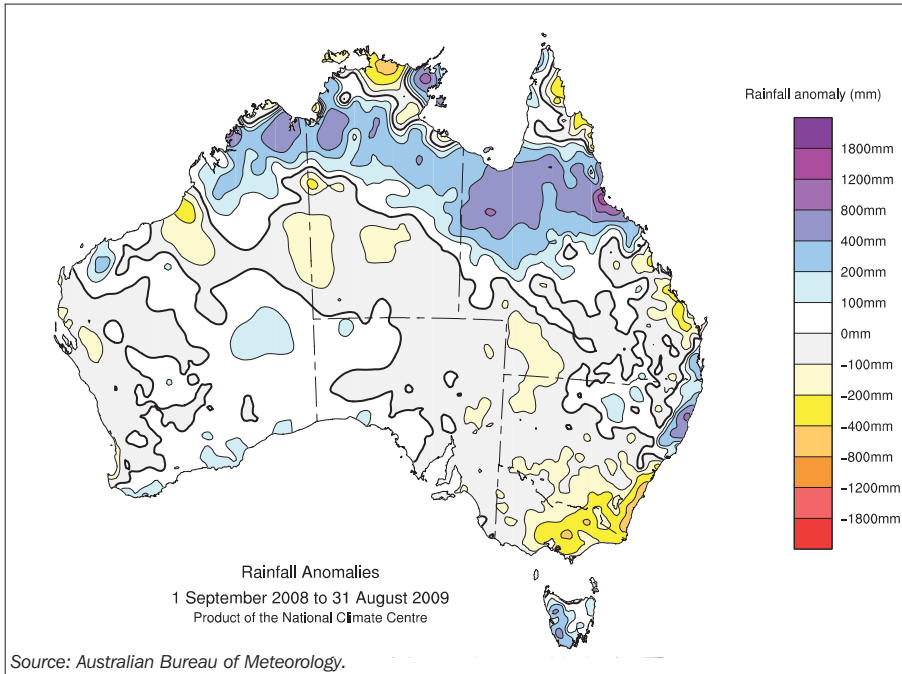
- landscapes with steep slopes provide better run-off than flatter environments
- the nature of the soil (e.g. sandy soils, clays) affects the amount of water that will run off, as does the condition of the soil (e.g. dry)
- soil condition and land cover
- in very hot weather (e.g. summer) much of the rainfall may be lost to evaporation. Likewise, the loss of water from transpiration in plant leaves and the consequent requirement for replenishment would decrease the amount of water available for run-off.

Based on long-term averages, run-off is high in northern Australia and parts of Tasmania where annual rainfall is relatively high (map 3.11).

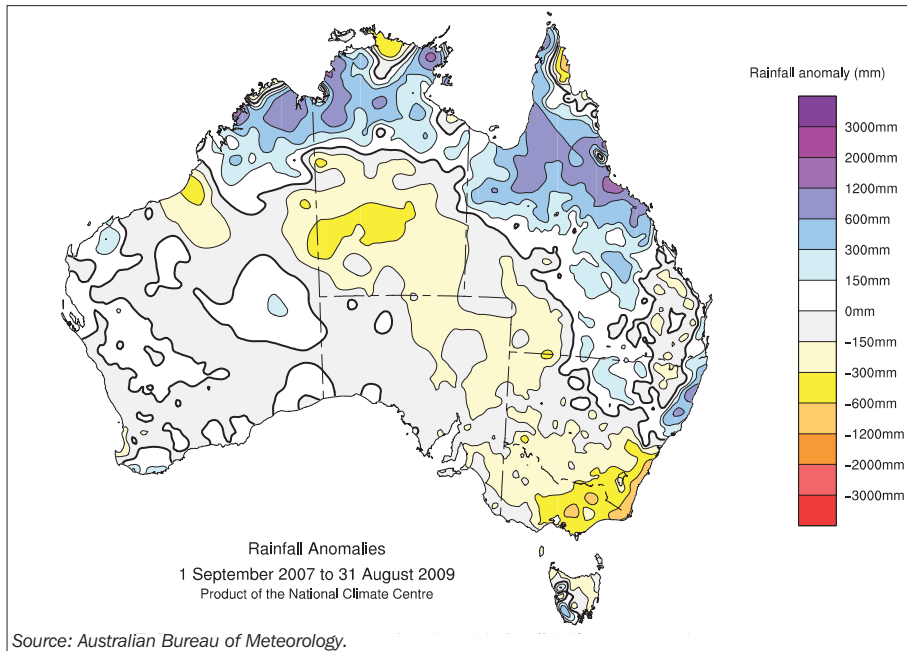
## Water storage

Surface water and groundwater are stored in a number of ways to supply agriculture, industry and urban users. Some of these storages include

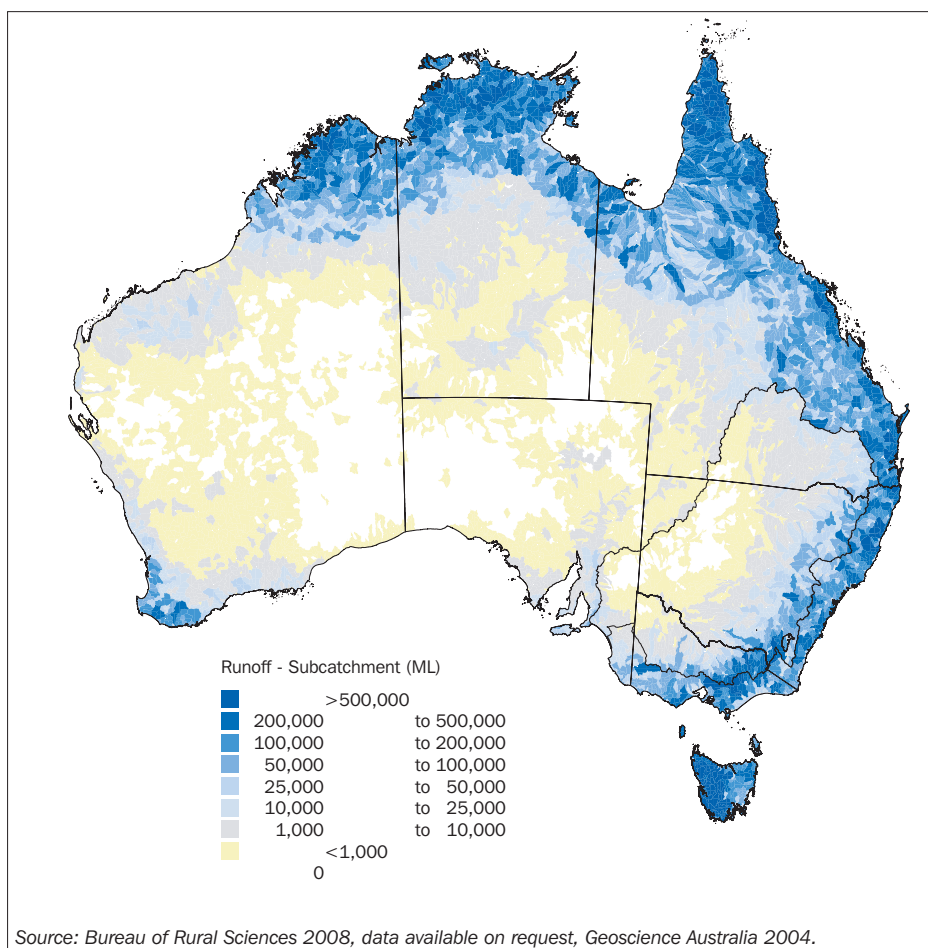
### 3.9 RAINFALL ANOMALIES—1 SEPTEMBER 2008–31 AUGUST 2009



### 3.10 RAINFALL ANOMALIES—1 SEPTEMBER 2007–31 AUGUST 2009



### 3.11 MEAN ANNUAL RUN-OFF IN AUSTRALIAN SUBCATCHMENTS—2008



large dams, farm dams and aquifers (underground storage).

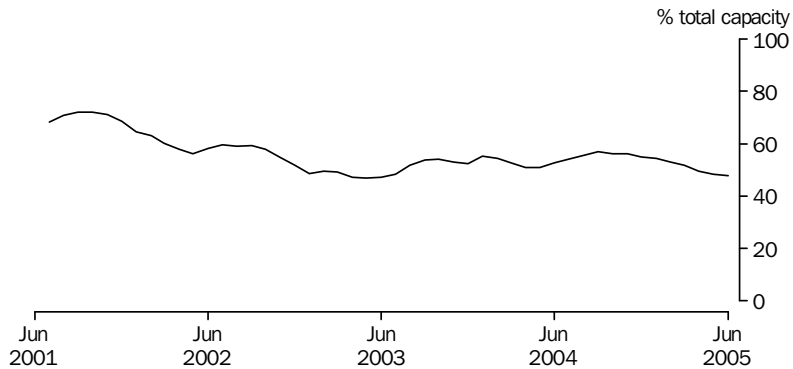
There were 501 large dams in Australia as at June 2005 with a total storage capacity of 83,853 GL. Storage levels declined continuously in the period 2001–05 (graph 3.12) as a result of reduced inflows, continued water extractions and climatic conditions. In the 12 months to June 2005 total storage levels decreased by 10% (from 44,164 GL to 39,959 GL).

#### Water use

Water use is important to quantify because it gives a baseline for the amount of water that society needs to operate, the pressures placed on

water systems by society, and the impacts of water management decisions on society. Measuring patterns of water use is important when predicting future land use, developing policy initiatives, or when reviewing the impact of present and past practices. For example, water use patterns give an indication of where water use efficiency programs or the buy-back of water licences should be focused. An assessment of water use by industry and households enables water managers to target management tools like drought contingency programs (e.g. water restrictions). Comparing water use with the economic value generated shows which activities are returning more economic value to society as a result of using the resource.

### 3.12 TOTAL STORAGE LEVEL OF LARGE DAMS



Source: *Water Account, Australia*, (4610.0).

The ABS Water Account for 2004–05 showed that agriculture was by far the largest consumer of water, accounting for 65% of total water consumption in that year, with households the next highest sector (11%), followed by the water supply industry (11%) and manufacturing (3%).

#### Agricultural water use

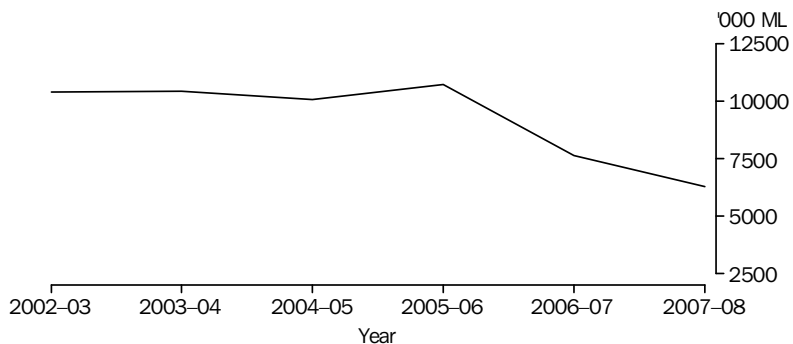
The agriculture industry remained a major consumer of water in the Australian economy in 2007–08. Australia's agricultural water use in 2007–08 decreased 18% from the previous year to 6,989 GL. This followed a drop of 27% in 2006–07 compared with 2005–06. Agricultural water use has continued to be impacted by reduced water availability due to the drought.

Of the water used for agricultural production in 2007–08, 90% was used for irrigation of crops and pastures. The remainder was used for other agricultural purposes, such as stock drinking water, dairy and piggery cleaning.

Irrigation water use was at a new low of 6,285 GL in 2007–08, following a decrease of nearly one-third in the preceding year (see graph 3.13).

The largest decrease in water use for irrigation was recorded in the Murray-Darling Basin, an area of national significance in terms of environmental and agricultural assets. (A case study on the Murray-Darling Basin features later in this section). For the two years 2006–07 and 2007–08, water use for irrigation dropped 40% and 30% respectively. In contrast, irrigation use for the rest of Australia decreased much less in both years,

### 3.13 AGRICULTURAL WATER USE FOR IRRIGATION



Note: Minor break in time series in 2005-06 due to changes to ABS survey frame.

Source: *Water Use on Australian Farms* (4618.0).

### 3.14 AGRICULTURE WATER USE FOR IRRIGATION, Australia and Murray-Darling Basin

Year	MURRAY-DARLING BASIN						REST OF AUSTRALIA		TOTAL AUSTRALIA	
	Volume applied		change	Volume applied		change	Volume applied		change	
	ML	%		ML	%		ML	%		
2005–06	7 369 807.0	—	3 367 557.0	—	10 737 364.0	—				
2006–07	4 458 279.0	-39.5	3 177 915.0	-5.6	7 636 194.0	-28.9				
2007–08	3 141 659.0	-29.5	3 143 140.0	-1.1	6 284 799.0	-17.7				

— nil or rounded to zero (including null cells)

Source: Water Use on Australian Farms, 2007–08 (4618.0).

### 3.15 AGRICULTURAL IRRIGATION USE, By state –2007–08

	Agricultural business		Irrigation	% of total
	no.	ML		
New South Wales(a)	44 521	1 677 083	26.7	
Victoria	34 177	1 332 045	21.2	
Queensland	29 121	1 842 729	29.3	
South Australia	14 996	880 268	14.0	
Western Australia	13 084	284 878	4.5	
Tasmania	4 200	252 113	4.0	
Northern Territory	605	^ 15 683	—	
<b>Australia</b>	<b>140 704</b>	<b>6 284 799</b>	<b>99.8</b>	

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

— nil or rounded to zero (including null cells)

(a) Includes ACT

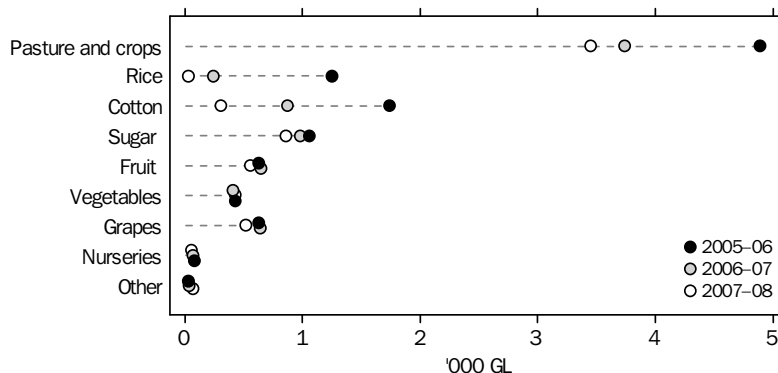
Source: Water Use on Australian Farms, 2007–08 (4618.0).

Of the 1,351 GL decrease in irrigation water use in Australia between 2006–07 and 2007–08, more than two-thirds (928 GL) was in New South Wales. All states and territories reported decreased irrigation use except Queensland, which remained steady. As a result, Queensland became the largest irrigating state, using 1,843 GL or 29% of total water use for irrigation in 2007–08 (table 3.15).

When looking at water use by agricultural activity, the rice industry showed the effects of dry conditions and limited irrigation water, using 27 GL of irrigation water in 2007–08, a decrease of 89% from the previous year. This drop in application of irrigation water followed a fall of 81% in 2006–07. Cotton growers faced similar conditions in 2007–08 and applied 309 GL of irrigation water, in comparison to 868 GL used in 2006–07 (graph 3.16). Irrigation water used for pasture and crops has decreased from 4,887 GL in 2005–06 to 3,737 GL in 2006–07 to 3,445 GL in 2007–08.

falling 6% between 2005–06 and 2006–07 and 1% between 2006–07 and 2007–08 (table 3.14).

### 3.16 WATER CONSUMPTION IN AGRICULTURE, By activity



Source: Water Use on Australian Farms (4618.0).

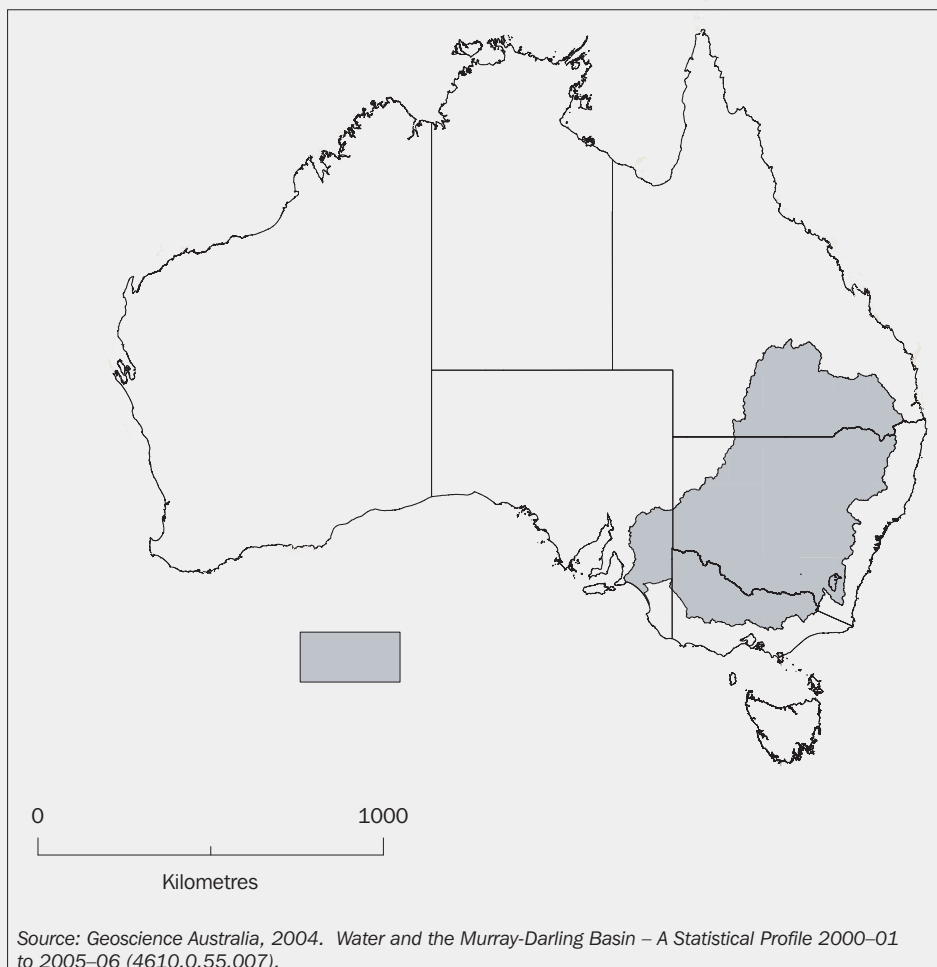
## Murray-Darling Basin

The Murray-Darling Basin is located in the south-east of Australia (map 3.17). The Basin covers 1,059,000 square kilometres or 14% of Australia's land area. It includes the Australian Capital Territory, and parts of Queensland (15%), New South Wales (75%), Victoria (60%) and South Australia (7%). The Basin contains Australia's three longest rivers, the Darling (2,740 km), Murray (2,530 km) and Murrumbidgee (1,690 km). Significant proportions of the Basin's area are comprised of agricultural land (67%) and native forest (32%).

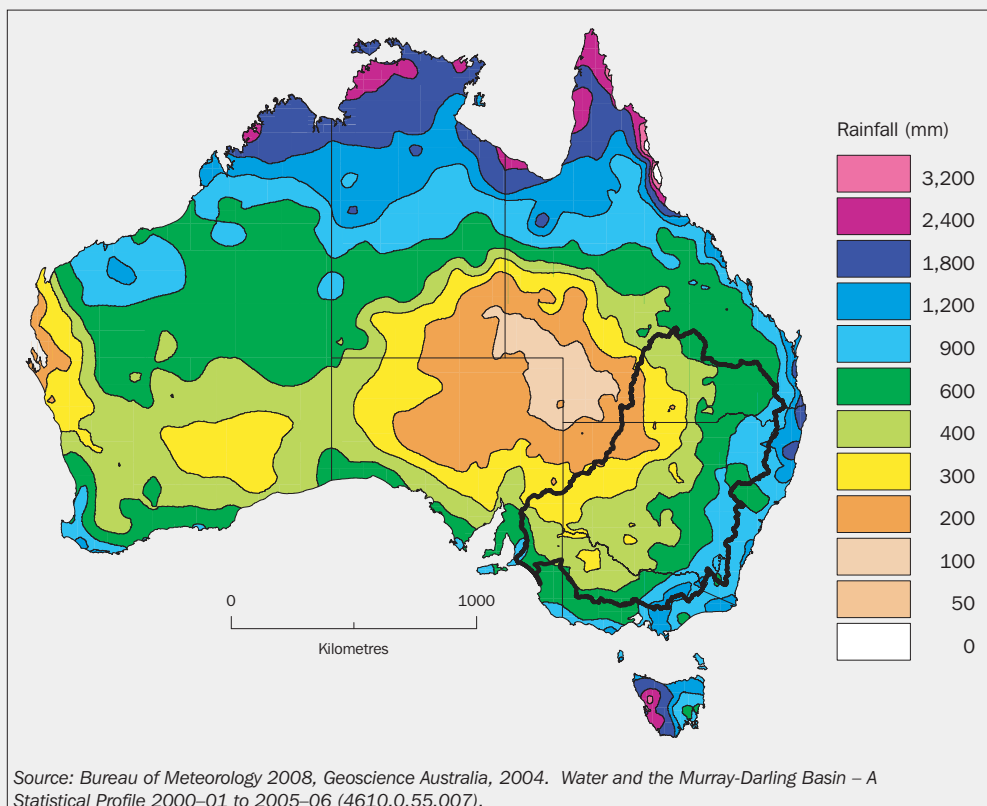
The climate of the Murray-Darling Basin is relatively dry compared to other regions of Australia (map 3.18). Annual rainfall in 2005–06 was lower in the Murray-Darling Basin than in the tropical north, eastern seaboard and south-west of the continent, as well as in Tasmania. However, most of the Basin received more rainfall than central Australia.

Based on long-term averages, the Murray-Darling Basin receives 530,618 GL of annual rainfall. Of this, 94% evaporates or transpires, 2% drains into

3.17 THE MURRAY-DARLING BASIN



### 3.18 TOTAL RAINFALL—2005–2006



### 3.19 ANNUAL WATER BALANCE – 2008

Water balance component	MURRAY-DARLING BASIN		AUSTRALIA	
	Volume	Proportion of rainfall	Volume	Proportion of rainfall
	GL	%	GL	%
Rainfall	530 618	100	3 704 913	100
Evapotranspiration	497 290	94	3 291 649	89
Run-off	23 609	4	349 431	9
Deep drainage	9 719	2	63 833	2

Note: Components may not add to rainfall total due to rounding. Data relates to long-term averages, and is not indicative of a single period of time.

Source: Bureau of Rural Sciences, 2008, Rural Water, viewed 9 July 2008, <http://adl.brs.gov.au/water2010/index.html>

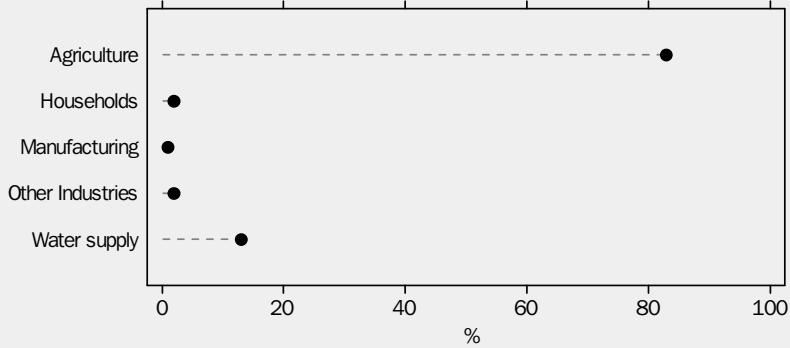
the ground, and the other 4% becomes run-off (table 3.19).

The latest 2004–05 figures show that industries (including agriculture) and households in the Murray-Darling Basin accounted for more than half (52%) of Australia's total water consumption.

Agriculture was the largest user of water in 2004–05 in the Murray-Darling Basin, accounting for 83% of water consumption in the Basin; households (2%) and other industries (2%) consumed minor amounts in comparison. The remaining 13% of total water consumed in the Murray-Darling Basin was by the water supply



### 3.20 WATER CONSUMPTION IN THE MURRAY-DARLING BASIN —2004–05



Source: *Water and the Murray-Darling Basin – A Statistical Profile 2000–01 to 2005–06* (4610.0.55.007).

industry, which includes losses in delivery systems (graph 3.20).

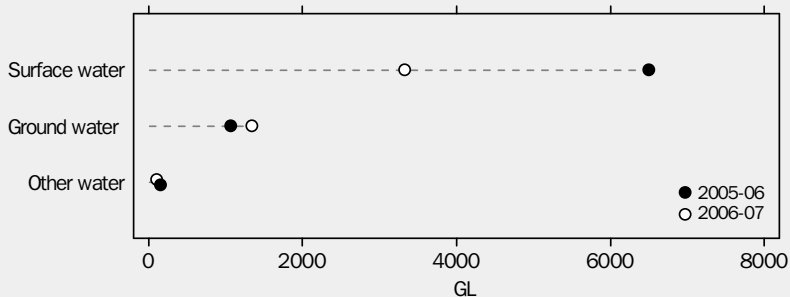
In the Murray-Darling Basin, water is also an essential production input for the electricity and gas industry. In 2004–05, approximately 3% of Australia's electricity and one-third (33%) of the nation's hydro-electricity was generated in the Murray-Darling Basin. Hydro-electricity represented the bulk of the Basin's generated electricity. Approximately 15,900 GL of water was used (non-consumptively) in the Murray-Darling Basin to generate 5,209 gigawatt hours (GWh) of hydro-electricity. The volume of water used in the Murray-Darling Basin represented 27% of Australia's hydro-electricity (in-stream) water use.

Agriculture water use data are available up to 2007–08, however, data on the use of water by

source are only available for 2005–06 and 2006–07. The main sources of water used by agriculture in the Murray-Darling Basin were surface and ground water (graph 3.21). These two sources combined accounted for 98% of all water consumed for agricultural production in the Basin. Other sources accounted for the remaining 2% of water consumption, including recycled or reused water from off-farm sources and reticulated mains supply.

In 2005–06, total agricultural water consumption in the Murray-Darling Basin was 7,720 GL, however in 2006–07 water consumption dropped by 38% to 4,772 GL. Due to dry conditions in 2006–07 use of surface water dropped to 3,323 GL, a 49% decrease compared to 2005–06 levels. Agricultural use of ground water increased to

### 3.21 SOURCES OF AGRICULTURAL WATER, Murray-Darling Basin— 2005–06 to 2006–07



Other includes: town/country reticulated mains supply & recycled/re-used water from farm sources.

Source: *Water Use on Australian Farms 2006–07* (4618.0), *Water and the Murray-Darling Basin – A Statistical Profile 2000–01 to 2005–06* (4610.0.55.007).

### 3.22 PASTURES AND CROPS IRRIGATED, MURRAY-DARLING BASIN

	2005-06	2006-07	2007-08
	GL	GL	GL
Pasture, cereal and other crops used for grazing	2 022.2	1 133.6	656.8
Pasture, cereal and other crops used for hay	648.8	468.8	340.6
Rice	1 251.9	239.4	26.7
Cereals for grain and seed (excluding rice)	623.7	571.8	805.3
Cotton	1 574.4	818.8	282.6
Sugar cane	—	—	—
Pastures for seed	25.2	74.0	n/a
Other broadacre crops	117.7	61.0	85.3
Fruit and nuts	412.7	417.1	356.1
Vegetables for human consumption and seed	152.0	124.9	124.0
Nurseries, cut flowers and cultivated turf	12.2	12.7	9.4
Grapes	514.8	533.9	433.9
Other pastures and crops not elsewhere classified	14.3	2.3	21.1
<b>Total volume applied</b>	<b>7 369.8</b>	<b>4 458.3</b>	<b>3 141.7</b>

— nil or rounded to zero (including null cells)  
 Note: Components may not add to volume total due to rounding.

Source: Water Use on Australian Farms, 2007-08 (4618.0);  
 Experimental Estimates of Gross Value of Irrigated  
 Agriculture Production, 2000-01 to 2006-07  
 (4610.0.55.0080).

1,338 GL (up 25%) and use of other water sources decreased to 111 GL (down 27%).

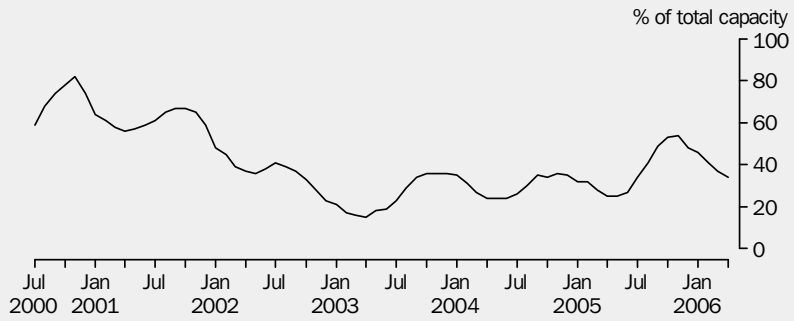
In 2007-08, irrigated agricultural water consumption in the Murray-Darling Basin was 3,142 GL, a drop of 1,317 GL (30%) compared to 2006-07 (table 3.22). The agriculture commodities that had the most water applied in the Murray-Darling Basin in 2007-08 were: cereals for grain and seed, excluding rice (26%), pastures, cereals and other crops used for grazing (21%) and grapes (14%). The Basin accounted for all irrigated water consumption in Australia for rice (100%), and the vast majority for cotton (91%), cereals to grain or seed, excluding rice (84%) and grapes (84%).

The volume of water used by the agricultural sector for crops and pastures varies from year to year. This is due to a variety of reasons such as: level of rainfall, volume of water available for irrigation (water allocations), technological improvements in irrigation infrastructure, water

trading, input costs and commodity prices. Between 2005-06 and 2007-08, water consumption by some commodities was more variable than others. For example, water consumption for cotton in the Murray-Darling Basin decreased considerably from 1,574 to 282 GL and rice also decreased from 1,252 to 27 GL.

Water storage levels in large dams located in the Murray-Darling Basin has progressively declined from July 2000 to June 2006. Basin storage levels were relatively high between July 2000 and December 2001 (greater than 50% for this 18 month period). From January 2002, the combined storage level in large dams in the Murray-Darling Basin did not increase above 50% except for a brief period in late 2005. There is a pattern of increased storage in the winter and spring months of almost every year. However, the amplitude and duration of water storage increase varies, and this affects the volume in storage (graph 3.23).

### 3.23 WATER STORAGE (a), Murray-Darling Basin—July 2000 to June 2006



(a) In large dams.

Source: *Water and the Murray-Darling Basin – A Statistical Profile 2000-01 to 2005-06* (4610.0.55.007).

## Air

The Earth's atmosphere consists mainly of nitrogen and oxygen. It also contains smaller amounts of other gases and particles, including ozone that protects us from harmful ultraviolet rays and greenhouse gases that trap some of the sun's rays to maintain the earth's surface temperature at levels able to support life.

However, some human activities change the nature of the atmosphere, affecting air quality, levels of ultraviolet (UV) radiation and the amount of greenhouse gases (such as carbon dioxide and methane). For example, the burning of fossil fuels (e.g. coal, oil and gas) has greatly added to the atmospheric levels of the greenhouse gas carbon dioxide, while the clearing of forests and grasslands has reduced the capacity to remove carbon dioxide from the atmosphere.

Emissions of substances into the atmosphere are considered in this section under three main categories: greenhouse gas emissions, air pollutants and ozone depleting substances.

### Greenhouse gas emissions

The main naturally occurring greenhouse gases (GHGs) in the earth's atmosphere are carbon dioxide and water vapour. The increased heating effect arising from increasing levels of GHGs in the atmosphere is known as the greenhouse effect and has been linked to global warming and climate change. A 2007–08 ABS survey of households indicated that nearly three-quarters

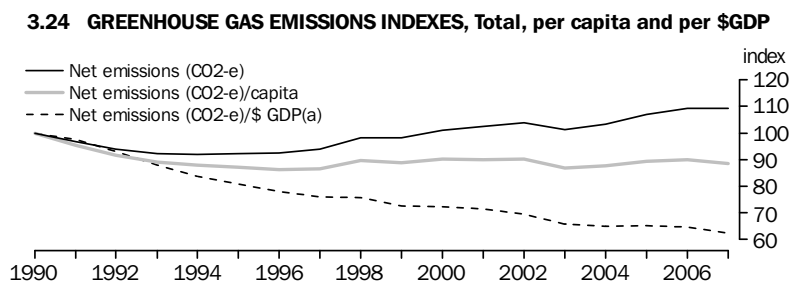
(73.5%) of Australians were concerned about climate change.

The main GHGs generated by human activities are carbon dioxide, methane and nitrous oxide. Smaller amounts of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride are also emitted. Carbon dioxide is by far the dominant GHG, accounting for about 74% when expressed as carbon dioxide equivalents (CO<sub>2</sub>-e). CO<sub>2</sub>-e is a measure used to take account of the different types of GHG emissions on a common basis.

Australia's total GHG emissions in 2007 were 9% greater than in 1990 (graph 3.24). Carbon dioxide emissions were 10% greater, methane emissions were 0.4% less, and nitrous oxide emissions were 24% greater. When Australia ratified the Kyoto Protocol its goal was to limit net GHG emissions to 8% above the 1990 levels across the period 2008–2012.

Australia reduced its greenhouse gas emissions per capita by 11.3% over the period 1990 to 2007 (from 31.8 tonnes CO<sub>2</sub>-e/capita in 1990 to 28.2 tonnes CO<sub>2</sub>-e/capita in 2007).

When Australia's GHG emissions are related to economic activity, as measured by Gross Domestic Product (GDP), it can be seen that there has been a steady decline in the amount of GHG emissions relative to GDP over the period 1990 to 2007. In 1990, the rate of emissions was 897.5 tonnes of CO<sub>2</sub>-e per \$million of GDP, decreasing to 559.6 in 2007, a fall of 38%.



GDP is a chain volume measure.

Note: Index displays emissions as a percentage of emissions in 1990.

Source: 2008, *Australian Historical Population Statistics 2008* (3105.0.55.001); 2009, *Australian National Accounts, National Income, Expenditure and product 2009* (5206.0); Department of Climate Change, *National Greenhouse Gas Inventory* May 2009.

Although the Australian economy (GDP) grew by 75% between 1990 and 2007, the nation's net GHG emissions grew by only 9%. The falling trend in emissions per unit of GDP has been attributed to better management of emissions across sectors, the large decline in land use change emissions, and stronger growth in the services sector rather than in the more energy intensive manufacturing sector.

## Main sources of greenhouse gas emissions

### Carbon dioxide

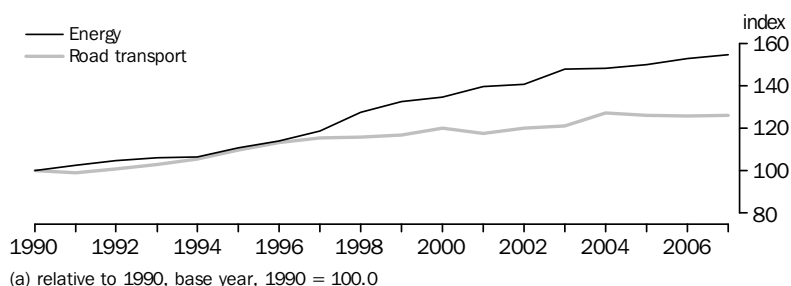
Most of Australia's carbon dioxide emissions occur as the result of fuel combustion. In 2007, fuel combustion accounted for 81.5% of the nation's total carbon dioxide emissions.

The energy industries, in particular electricity generation from coal-fired stations, accounted for 60% of fuel combustion emissions in 2007, up from 56% in 1990. Road transport accounted for 18% of fuel combustion emissions in 2007.

Between 1990 and 2007, carbon dioxide emissions from fuel combustion increased by 44.5%. Within the fuel combustion activities, energy industries showed an increase of 55% and road transport was up 25% in this period (graph 3.25).

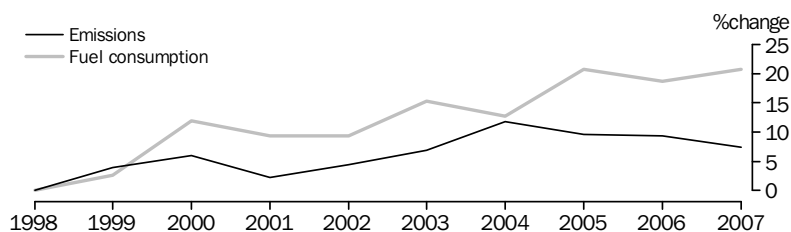
Of note is the comparison between passenger vehicle fuel consumption and carbon dioxide emissions for the period 1998 to 2007. The former increased by 21% between 1998 and 2007, whereas the latter increased by 7%. From 2005, carbon dioxide emissions by passenger vehicles are seen to have decreased compared to fuel

### 3.25 CARBON DIOXIDE EMISSIONS (a): ENERGY AND TRANSPORT



Source: Australian Greenhouse Emissions Information System (AGEIS), National Greenhouse Gas Inventory - Kyoto Protocol Accounting Framework.

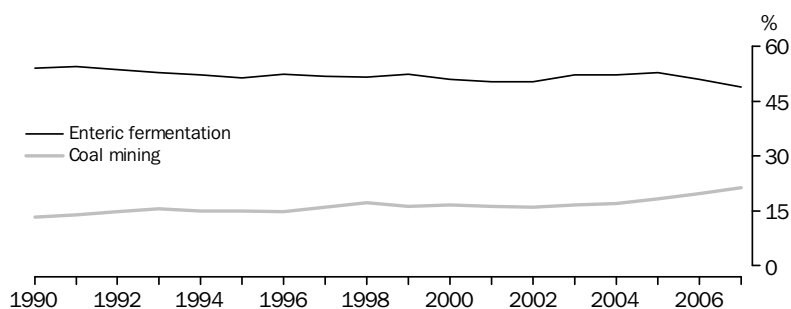
### 3.26 PASSENGER VEHICLES - CO2 EMISSIONS & FUEL CONSUMPTION



Note: Base year = 1998. Comparable fuel consumption data were not available prior to 1998. The fuel consumption year is the 12 months ending July 1998 and 1999 or Oct (2000-2007).

Source: Survey of Motor Vehicle Use, October 2007, 2002, Table 1 (9208.0) Australian Greenhouse Emissions Information System (AGEIS), National Greenhouse Gas Inventory - Kyoto Protocol Accounting Framework.

### 3.27 MAIN SOURCES OF METHANE EMISSIONS



Source: Australian Greenhouse Emissions Information System (AGEIS), National Greenhouse Gas Inventory - Kyoto Protocol Accounting Framework.

consumption (graph 3.26), which may reflect a move towards the use of liquefied petroleum gas (LPG) which has a lower carbon dioxide emission factor than other fuels.

#### Methane

When expressed in CO<sub>2</sub>-e, methane comprised 19.7% of Australia's total GHG emissions in 2007, compared to 21.6% in 1990.

The digestive processes of livestock (enteric fermentation) and fugitive emissions from coal mining together account for more than two-thirds of Australia's methane emissions (graph 3.27).

#### Nitrous oxide and other gases

When expressed in CO<sub>2</sub>-e, nitrous oxide comprised 4.1% of Australia's total GHG emissions in 2007, compared to 3.6% in 1990. Nitrous oxide emissions are mainly the result of the use of nitrogen-based fertilisers and manure.

Very small contributions to GHG emissions are made by the hydrofluorocarbons (HFCs), the perfluorocarbons (PFCs) and sulphur hexafluoride that are used in refrigeration and air-conditioning equipment, fire extinguishers, aerosol cans and electrical equipment. The combined contribution of these gases to the total GHG emissions has been around 1% or less over the period 1990 to 2007.

#### Air pollutants

The state of our air is an important factor in the quality of life. Air pollutant levels are not considered to be high in urban Australia (relative to other world cities). However, poor air quality can have a range of negative effects, from causing health problems and reducing crop yields to harming flora and fauna.

The main air pollutants in outdoor (or ambient) air are carbon monoxide, nitrogen dioxide, photochemical oxidants (as ozone), sulphur dioxide and particles (dusts). The National Environment Protection Measure for Ambient Air Quality (the Air NEPM) sets standards for the maximum concentrations of key air pollutants which all Australian jurisdictions are legally bound to meet.

Carbon monoxide is generated during the burning of carbon containing substances, either in the form of fossil fuels or as vegetation. In 2007, the prescribed burning of savannas (grasslands) by the agriculture sector generated over four times as much carbon monoxide as the energy sector (table 3.28).

The main source of sulphur dioxide emissions is industrial activity including copper, lead, zinc, nickel and silver processing.

Nitrogen dioxide is an important air pollutant because it contributes to the formation of photochemical smog, which is another health hazard. The burning of fossil fuels, (coal, oil and gas), is a major source of nitrogen dioxide. Most

### 3.28 SELECTED AIR POLLUTANTS AND SOURCES, 2007

Sector	Oxides of Nitrogen (a)	Carbon Monoxide	Sulphur Dioxide
	kilotonnes	kilotonnes	kilotonnes
Energy			
Electricity and heat production	633.3	59.9	614.4
Manufacturing	422.1	300.1	137.3
Transport	369.0	2 445.3	26.3
Road transport	276.8	2 102.3	12.4
Residential	7.6	603.7	0.5
Industrial processes	31.2	5.7	1 669.7
Agriculture	663.6	15 475.1	—

— nil or rounded to zero (including null cells)

(a) Mainly nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>)

Source: DCC, National Greenhouse Gas Inventory 2007,

Tables CRF Energy and IP Department of Environment, Water Heritage and the Arts, Oxides and Nitrogen - Substance Fact Sheet.

of the nitrogen dioxide in cities comes from motor vehicle exhausts (about 80%).

Particulate matter (mainly smoke and dust) emissions are reported in the National Pollution Inventory (NPI). Two sizes of particle are measured, 10 micrometres or less in diameter (PM<sub>10</sub>) and 2.5 micrometres or less in diameter (PM<sub>2.5</sub>). These particles are of a size that can be inhaled and hence pose a health hazard to humans (and animals). Besides being a health hazard, particulate matter can affect the aesthetics and utility of areas through visibility reduction, and may affect buildings and other structures and vegetation.

PM<sub>2.5</sub> is mainly emitted by coal-burning electricity generating plants and by mining operations. Bushfires and dust storms add to the burden of smoke and dust exposure. Within a given region, or population centre, the exposure to these particles will vary according to the local activities e.g. in Adelaide the suburb of Netley, next to Adelaide Airport, exceeded the levels for PM<sub>10</sub> on 11 days in 2008, while the residential suburb of Kensington Gardens registered one day of exceedence in that period.

It should be noted that the measurements relate to the amounts generated at the source and therefore exposure to humans and the environment to pollution cannot be determined by the NPI. Industrial/mining emissions are estimated from reports provided by industry, while others, such as windblown dust, bushfires, and motor vehicles are estimated by state authorities (table 3.29).

### Ozone depleting substances

The ozone layer is a naturally occurring layer of the upper atmosphere where harmful ultraviolet radiation from the sun is filtered out. Ozone depleting substances (ODSs) can break down the ozone layer, allowing more harmful radiation to penetrate.

Data collected in the upper atmosphere have shown a general thinning of the earth's ozone layer, including a 5–9% depletion over Australia since the 1960's. The Antarctic ozone hole is a thinning of ozone in the stratosphere over Antarctica each spring.

### 3.29 PARTICULATE EMISSIONS 2007–08

Source	PM <sub>10</sub>	PM <sub>2.5</sub>
	kilograms/yr	kilograms/yr
Metal ore mining	270 000	9 100
Burning (fuel reduction, regeneration, agricultural) / Wildfires	240 000	—
Coal mining	210 000	4 600
Windblown dust	190 000	—
Paved/unpaved roads	160 000	—
Electricity generation	27 000	10 000
Solid fuel burning (domestic)	20 000	—
Motor vehicles	12 000	—
Basic non-ferrous metal manufacturing	11 000	920
Water transport	11 000	790
Oil and gas extraction	2 400	3 100
Log sawmilling and timber dressing	1 300	770

— nil or rounded to zero (including null cells)

Source: Department of the Environment, Water, Heritage and the Arts, National Pollution Inventory.

The main classes of ODSs are chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons and methyl bromide. Australia was a signatory to the Montreal Protocol in 1989, whereby countries agreed to phase out the use of ODSs. The use of CFCs, traditionally used in refrigeration and

aerosols, has largely been replaced by hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), which are synthetic greenhouse gases. Emissions from HFCs and PFCs increased almost five-fold between 1990 and 2007, but in total they contribute 1% or less to Australia's total greenhouse gas emissions.



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# 4

## GOVERNMENT

*This chapter was contributed by the Politics and Public Administration Section of the Library of the Commonwealth Parliament (December 2009).*

Australia has a federal system of government within which there are four divisions - Commonwealth, state, territory and local. This chapter outlines the basic features of the Australian system of government.

The 41st Commonwealth Parliament was prorogued on 15 October 2007 for a general election for all members of the House of Representatives, half of the 72 state senators and the four territory senators on 24 November 2007. Results of the 2007 and earlier elections can be found on the website of the Australian Electoral Commission, <<http://www.aec.gov.au>>.

## Constitutional basis of government

Australia is a constitutional democracy based on a federal division of powers between Commonwealth, state, territory and local levels of government. The constitutional basis of government consists of:

- the Commonwealth Constitution, including amendments
- state and territory constitutions, including amendments
- legislation passed by the Commonwealth Parliament and the state and territory parliaments
- judgments by the High Court of Australia
- significant conventions of responsible government adopted from the British system of government that are in use at the Commonwealth, state and territory levels of government.

### Commonwealth constitution

The national Constitution is found in the *Commonwealth of Australia Constitution Act 1900* (Cwth), a British Act that became law in July 1900 and came into force on 1 January 1901.

Any proposed law for the alteration of the Commonwealth Constitution must be passed by an absolute majority of each house of the Commonwealth Parliament (except in circumstances specified in section 128 of the Constitution which permit a referendum to proceed if passed by only one chamber). An amendment proposal must also be submitted to a referendum of the electors in each state and territory, where it must be approved by a majority of the voters in a majority of the states, as well as a majority of all voters.

Since 1901, 44 proposed amendments have been submitted to referenda. The consent of the electors has been given in regard to eight matters:

- 1906 – election of senators
- 1910 – state debts
- 1928 – state debts
- 1946 – social services
- 1967 – Aboriginal people

- 1977 – Senate casual vacancies
- 1977 – retirement age for federal judges
- 1977 – the right of territory electors to vote in constitutional referenda.

Each state and territory has its own constitution found in legislation. Where a law of a state is inconsistent with a law of the Commonwealth, the latter law prevails and the former law is, to the extent of the inconsistency, invalid.

## The Sovereign

Since 7 February 1952, the Australian Sovereign has been Her Majesty Queen Elizabeth II.

On 6 November 1999 a vote to establish Australia as a republic was put to a national referendum. The proposal was defeated, with 54.9% of electors voting against it.

## The Governor-General

The Governor-General is the representative of the Sovereign, appointed by the Sovereign on the advice of the Australian Prime Minister.

Her Excellency, Ms Quentin Bryce AC has been Governor-General since 5 September 2008.

## Power and functions

The Governor-General exercises the executive power of the Commonwealth of Australia on the advice of the Prime Minister. Certain other powers and functions conferred by the Constitution include the powers to:

- appoint times for holding the sessions of the Parliament
- prorogue Parliament
- dissolve the House of Representatives
- dissolve the House of Representatives and the Senate in the event of a double dissolution
- cause writs to be issued for general elections of members of the House of Representatives
- assent in the Queen's name to a proposed law passed by both Houses of the Parliament
- appoint ministers of state for the Commonwealth of Australia.

The Governor-General, 'as the Queen's representative', is Commander-in-Chief of the Australian Defence Force.

Many Acts of the Commonwealth Parliament provide that the Governor-General may make Regulations to give effect to such Acts. The Governor-General may also be authorised by statute to issue proclamations, for example, to declare an Act in force. The Governor-General has been given power by statute to legislate for certain Australian territories.

The Governor-General also possesses what are referred to as 'reserve powers'. These may be used without the advice of the Prime Minister, but are used only in times of political uncertainty.

The Queen may appoint an Administrator of the Commonwealth when the Governor-General is out of the country, ill, or when the position of Governor-General is vacant. By convention, the longest-serving state governor is appointed as Administrator.

## Commonwealth Parliament

Commonwealth legislative power is vested in the Commonwealth Parliament, comprising the House of Representatives and the Senate. There are currently 226 members of the Parliament (MPs) – 150 members of the House of Representatives and 76 Senators.

## Powers of Parliament

Apart from the constitutional requirement that all financial legislation must originate in the House of Representatives and that the Senate cannot amend such legislation, the two houses have similar powers. The fact that the Senate can reject financial legislation makes it potentially one of the most powerful upper houses in the world.

As Australia has a federal system of government, the formal powers of the Commonwealth Parliament are constitutionally limited to areas of national importance such as trade and commerce, taxation, postal services, foreign

relations, defence, immigration, naturalisation, quarantine, currency and coinage, weights and measures, copyright, patents and trade marks. However, High Court decisions, Commonwealth-state agreements and use by the Commonwealth of the constitutional power to make grants to the states and territories, have seen the Commonwealth gain influence in regard to various other matters including industrial relations, financial regulation, companies and securities, health and welfare, and education.

## Functions of Parliament

Parliament has five primary functions:

- to provide for the formation of a government
- to make the law
- to provide a forum for popular representation
- to scrutinise the actions of government
- to provide a forum for criticism of the government.

The *formation of a government* is the most important outcome of a general election. Either the government is returned by virtue of retaining a majority of seats in the House of Representatives, or the opposition party or a coalition of parties wins a majority of seats, resulting in the formation of a new government. A new government could also be formed on any occasion between elections if the majority party changes its leader, or loses its majority (e.g. as a result of a by-election), or is defeated in an important vote in the House of Representatives. The last occurrence of government changing hands between elections occurred in October 1941.

More than half of Parliament's time is taken up with the *consideration of proposed legislation*. Between 150 and 250 Bills are passed each year. Most Bills are not contentious, either being 'machinery' legislation necessary for the orderly processes of government, or Bills that propose alterations to existing legislation. Most of the Bills are government Bills; legislation sponsored by private members is rare.

The *representation of the people* is an important role of members of the House of Representatives and Senators. Working for their constituents occupies a great deal of their time. The relative importance of this role may be judged by the high proportion of time spent by MPs in their electorates and away from Parliament. Since the beginning of 2000, Parliament has averaged 65 sitting days per year.

The *scrutiny* function is seen most obviously in the formal periods of Question Time, in both houses, that are part of each day's sitting. Question Time is the best-known part of parliamentary proceedings, and is attended by many of the visiting public. Less well-known is the activity of parliamentary committees which are established in order that Parliament's legislative, representation and scrutiny functions can be carried out thoroughly and with the benefit of expert advice. These committees undertake the scrutiny of government operations as well as frequent inquiries into a range of current issues.

Parliament also acts as a *forum* where peoples' concerns can be aired prominently. This can be in Question Time, in debates on major issues, in grievance debates, in adjournment debates and at various stages of the legislative process.

## Australian Government

### Prime Minister

The office of Prime Minister is not recognised by the Constitution, being a conventional part of the governmental arrangements. It is also a matter of convention that the Prime Minister is always a member of the House of Representatives.

After an election, the Governor-General sends for the leader of the party, or coalition, which has secured a majority in the House of Representatives, and commissions that person to assume the office of Prime Minister and to form a government.

The Prime Minister has the following powers:

- advising the Sovereign on the appointment of the Governor-General
- acting as the sole source of formal advice for the Governor-General

- advising the Governor-General as to when Parliament should be dissolved
- setting the date for House of Representatives elections
- allocating positions in the Cabinet
- chairing Cabinet meetings.

The Hon Kevin Rudd MP (Australian Labor Party) has been Prime Minister since 3 December 2007.

### Ministers

The Prime Minister nominates members of his or her parliamentary party or coalition to serve as ministers, responsible for administering government departments such as the Treasury, the Department of Foreign Affairs and Trade or the Department of Defence. The Constitution requires that all ministers be either a member of the House of Representatives or a Senator. If a new minister is not an MP, it is obligatory for that minister to become an MP within three months of his/her appointment. Ministers may be appointed or replaced at any time between elections.

From time to time certain members of the Commonwealth Parliament have been appointed by governments to assist ministers in their work. Such persons have been known by a variety of designations, including parliamentary under-secretary and assistant minister; the current term is parliamentary secretary.

The ministries since Federation are listed in table 4.1.

### Cabinet

Senior ministers are members of the Cabinet, the meetings of which are chaired by the Prime Minister. Cabinet is not a body that is recognised by the Constitution, being a conventional part of the governmental arrangements. Despite this, Cabinet effectively controls not only a government's legislative program, but also government departments of state. In effect, therefore, Cabinet is the dominant political and administrative element in Australia's national government. The Governor-General does not attend Cabinet meetings.

Particulars of the First Rudd Ministry, comprising Cabinet ministers and the outer ministry, are shown in table 4.2.

#### 4.1 MINISTRIES SINCE 1901—November 2009

<i>Number of ministry</i>	<i>Ministry</i>	<i>Period of office</i>	<i>Party</i>
1	Barton	1 January 1901 to 24 September 1903	Protectionist
2	Deakin	24 September 1903 to 27 April 1904	Protectionist
3	Watson	27 April 1904 to 17 August 1904	Australian Labor Party
4	Reid-McLean	18 August 1904 to 5 July 1905	Free Trade-Protectionist
5	Deakin	5 July 1905 to 13 November 1908	Protectionist
6	Fisher	13 November 1908 to 2 June 1909	Australian Labor Party
7	Deakin	2 June 1909 to 29 April 1910	Protectionist-Free Trade-Tariff Reform
8	Fisher	29 April 1910 to 24 June 1913	Australian Labor Party
9	Cook	24 June 1913 to 17 September 1914	Liberal
10	Fisher	17 September 1914 to 27 October 1915	Australian Labor Party
11	Hughes	27 October 1915 to 14 November 1916	Australian Labor Party
12	Hughes	14 November 1916 to 17 February 1917	Nationalist Labour
13–14	Hughes	17 February 1917 to 9 February 1923	Nationalist
15	Bruce-Page	9 February 1923 to 22 October 1929	Nationalist-Country Party
16	Scullin	22 October 1929 to 6 January 1932	Australian Labor Party
17–18	Lyons	6 January 1932 to 7 April 1939	United Australia Party
19	Page	7 April 1939 to 26 April 1939	Country Party-United Australia Party
20	Menzies	26 April 1939 to 14 March 1940	United Australia Party
21–22	Menzies	14 March 1940 to 29 August 1941	United Australia Party-Country Party
23	Fadden	29 August 1941 to 7 October 1941	Country Party-United Australia Party
24–25	Curtin	7 October 1941 to 6 July 1945	Australian Labor Party
26	Forde	6 July 1945 to 13 July 1945	Australian Labor Party
27–28	Chifley	13 July 1945 to 19 December 1949	Australian Labor Party
29–33	Menzies	19 December 1949 to 26 January 1966	Liberal-Country Party
34–35	Holt	26 January 1966 to 19 December 1967	Liberal-Country Party
36	McEwen	19 December 1967 to 10 January 1968	Liberal-Country Party
37–39	Gorton	10 January 1968 to 10 March 1971	Liberal-Country Party
40	McMahon	10 March 1971 to 5 December 1972	Liberal-Country Party
41–43	Whitlam	5 December 1972 to 11 November 1975	Australian Labor Party
44–48	Fraser	11 November 1975 to 11 March 1983	Liberal-National Country Party
49–52	Hawke	11 March 1983 to 20 December 1991	Australian Labor Party
53–55	Keating	20 December 1991 to 11 March 1996	Australian Labor Party
56–59	Howard	11 March 1996 to 3 December 2007	Liberal-Nationals
60	Rudd	3 December 2007 to	Australian Labor Party

Source: Library of the Commonwealth Parliament.

## 4.2 FIRST RUDD MINISTRY—June 2009

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### CABINET MINISTERS

Prime Minister	The Hon. Kevin Rudd MP
Minister for Education, Employment and Workplace Relations and Minister for Social Inclusion (Deputy Prime Minister)	The Hon. Julia Gillard MP
Treasurer	The Hon. Wayne Swan MP
Minister for Foreign Affairs	The Hon. Stephen Smith MP
Minister for Trade	The Hon. Simon Crean MP
Minister for Finance and Administration	The Hon. Lindsay Tanner MP
Minister for Health and Ageing	The Hon. Nicola Roxon MP
Attorney-General	The Hon. Robert McClelland MP
Minister for Broadband, Communications and the Digital Economy	Senator the Hon. Stephen Conroy
Minister for Defence	Senator the Hon. John Faulkner
Minister for Innovation, Industry, Science and Research	Senator the Hon. Kim Carr
Minister for Immigration and Citizenship	Senator the Hon. Chris Evans
Minister for Agriculture, Fisheries and Forestry	The Hon. Tony Burke MP
Minister for Families, Housing, Community Services and Indigenous Affairs	The Hon. Jenny Macklin MP
Minister for Environment, Heritage and the Arts	The Hon. Peter Garrett MP
Minister for Infrastructure, Transport, Regional Development and Local Government	The Hon. Anthony Albanese MP
Cabinet Secretary and Special Minister of State	Senator the Hon. Joe Ludwig
Minister for Climate Change and Water	Senator the Hon. Penny Wong
Minister for Resources and Energy and Minister for Tourism	The Hon. Martin Ferguson MP
Minister for Human Services	The Hon. Chris Bowen MP

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### OUTER MINISTRY

Minister for Home Affairs	The Hon. Brendan O'Connor MP
Assistant Treasurer	Senator the Hon. Nick Sherry
Minister for Veterans' Affairs	The Hon. Alan Griffin MP
Minister for Ageing	The Hon. Justine Elliott MP
Minister for Housing and Minister for the Status of Women	The Hon. Tanya Plibersek MP
Minister for Sport and Minister for Early Childhood Education, Childcare and Youth	The Hon. Kate Ellis MP
Minister for Defence Personnel, Materiel and Science and Minister assisting the Minister for Climate Change	The Hon. Greg Combet MP
Minister for Financial Services, Superannuation and Corporate Law	The Hon. Chris Bowen MP
Minister for Small Business, Independent Contractors and the Service Economy, Minister assisting the Finance Minister on Deregulation and Minister for Competition Policy and Consumer Affairs	The Hon. Craig Emerson MP
Minister for Employment Participation and Minister assisting the Prime Minister for Government Service Delivery	Senator the Hon. Mark Arbib
Minister for Indigenous Health, Rural and Regional Health and Regional Service Delivery	The Hon. Warren Snowdon MP

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Source: Library of the Commonwealth Parliament.

## The Opposition

In Westminster-derived governments, such as Australia's, the Opposition has a recognised and formal status, being recognised in the Standing Orders of the Parliament and in legislation. The Opposition is seen as the alternative government and typically forms a 'shadow Cabinet' of MPs who prepare themselves to take on the reins of government. The Opposition also has the role of acting as the main critic of the government and of offering to the community an alternative set of policies.

Mr Tony Abbott MP (Liberal Party of Australia) has been Leader of the Opposition since 1 December 2009.

## Commonwealth elections

Generally, the 150 members of the House of Representatives, half of the 72 state senators and the four territory senators are elected approximately every three years.

## Voting methods

Members of the House of Representatives are elected by voters using the alternative vote electoral system (known in Australia as 'preferential voting'); Senators are elected by voters using the voting method known as proportional representation (single transferable vote variant).

## Franchise

Any Australian citizen aged 18 years and over, or British subject who was on the Commonwealth Roll as at 25 January 1984, is qualified to enrol and vote at Commonwealth elections. Residence in a particular electorate for at least a period of one month is also a requirement. Enrolment and attendance at a polling place on polling day (except under certain lawful exceptions) are compulsory for all eligible persons.

## Parliamentary terms

Members of the House of Representatives are elected for a maximum term of three years, though elections may be called earlier. Senators have fixed terms of six years. Normally half the Senate retires every three years, and half-Senate elections are usually held at the same time as elections for the House of Representatives,

though they need not be. The most recent separate elections for each house occurred in 1970 (Senate) and 1972 (House of Representatives).

At times of disagreement between the House of Representatives and the Senate, the two houses may be dissolved and an election called for both. Of the 42 Commonwealth elections, six have been 'double dissolution' elections, the most recent of which occurred in 1987.

There have been 42 parliaments since Federation. The longest parliament was the third, which ran from 20 February 1907 to 19 February 1910, and the shortest was the eleventh, which ran from 6 February to 16 September 1929.

The 42nd Parliament was required to meet within 30 days of the day appointed for the return of the electoral writs in the 24 November 2007 election. Parliament commenced on 12 February 2008. For details of the 2007 election, see <<http://www.aec.gov.au>>.

## Electorates

For the purpose of House of Representatives elections each state or territory is divided into single-member electorates according to the number of members of the House of Representatives to which the state or territory is entitled (table 4.3). The article *Drawing House of Representatives electorate boundaries* which discusses electoral redistributions in detail is in *Year Book Australia 2005*. In Senate elections the whole state or territory constitutes a single electorate.

### 4.3 ENROLMENT AND ELECTORATES—June 2009

	<i>Electors enrolled</i>	<i>Electorates</i>
New South Wales	4 554 311	49
Victoria	3 490 260	37
Queensland	2 688 131	29
Western Australia	1 350 559	15
South Australia	1 087 233	11
Tasmania	356 065	5
Northern Territory	120 530	2
Australian Capital Territory	245 473	2
<b>Total</b>	<b>13 892 562</b>	<b>150</b>

Source: Australian Electoral Commission.



## 2007 election

The House of Representatives was dissolved on 17 October 2007. Elections for the House of Representatives and half of the Senate were held on 24 November 2007.

The Australian Labor Party gained control of the House of Representatives but did not gain control of the Senate. The Labor Party formed Australia's 60th Commonwealth Government.

## State government

The Australian nation was created by the federation of the six British self-governing colonies of New South Wales, Tasmania, Queensland, Western Australia, Victoria and South Australia which became the 'Original States' in the Commonwealth of Australia. Under the constitutional arrangements that came into existence in 1901 significant powers were retained by these states. State administrative responsibilities include education, police, public health, public transport, agriculture, roads, community services, corrective services, mineral resources, emergency services, ports and the oversight of local government.

## Governors

A state governor is the representative of the Sovereign, appointed by the Sovereign on the advice of the state's premier. The governor exercises the executive power of his or her state on the advice of the premier. Other powers and functions are similar to the powers exercised at the Commonwealth level by the Governor-General.

In addition, governors have been invested with various statutory functions by state constitutions

and the *Australia Act 1986* (Cwlth), as well as under the Acts of the parliaments of the states. For example, governors may administer the prerogative of mercy by the reprieve or pardon of criminal offenders, and may remit fines and penalties.

The governors also possess what are referred to as 'reserve powers'. These may be used without the advice of the premier, but are used only in times of political uncertainty.

The governors of the states at December 2009 are shown in table 4.4.

## Governments

Each state is governed by a ministry headed by a premier. The state cabinet, chaired by the premier, is the centre of political and administrative power in each state.

Each state has a formal opposition, with the same role as at the Commonwealth level.

Table 4.5 lists the premiers at December 2009.

## Parliaments

Five of the six Australian states have a bicameral parliament. In Queensland there is a single house. The lower houses in New South Wales, Victoria, Queensland and Western Australia are entitled Legislative Assembly; in South Australia and Tasmania the term is House of Assembly. The title of the five upper houses is Legislative Council.

## Elections

The members of the parliaments of each state are elected by the residents of that state using either the alternative vote ('preferential voting') or

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### 4.4 GOVERNORS—December 2009

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New South Wales	Her Excellency Professor Marie Bashir AC
Victoria	Professor David de Krester AC
Queensland	Her Excellency Ms Penelope Wensley AO
Western Australia	His Excellency Dr Ken Michael AM
South Australia	His Excellency Rear Admiral Kevin Scarce AO CSC
Tasmania	His Excellency the Hon. Peter Underwood AC

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Source: Library of the Commonwealth Parliament.

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#### 4.5 PREMIERS—December 2009

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New South Wales	The Hon. Kristina Keneally MP (ALP)
Victoria	The Hon. John Brumby MLA (ALP)
Queensland	The Hon. Anna Bligh MLA (ALP)
Western Australia	The Hon. Colin Barnett MLA (LP)
South Australia	The Hon. Mike Rann MLA (ALP)
Tasmania	The Hon. David Bartlett MHA (ALP)

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Source: Library of the Commonwealth Parliament.

proportional representation (single transferable vote variant).

### Territory government

The Commonwealth Government assumed control of both the Northern Territory and the Australian Capital Territory in 1911. The Northern Territory (since 1978) and the Australian Capital Territory (since 1989) are self-governing territories with powers almost matching those of the states. The Northern Territory has been working towards full statehood, though a referendum on the question was rejected by Northern Territory voters in 1998. Norfolk Island was accepted into the Commonwealth as an Australian territory in 1914. The *Norfolk Island Act 1979* (Cwlth) grants a considerable degree of self-government to that territory.

The Northern Territory and Norfolk Island both have an administrator of the territory, appointed by the Governor-General (table 4.6). The

Australian Capital Territory has neither administrator nor governor.

Each territory has an elected Legislative Assembly, with a wide range of powers, with a government headed by a chief minister (table 4.7). The Northern Territory and the Australian Capital Territory have a formally recognised opposition. Norfolk Island's Legislative Assembly does not possess a formal opposition.

Jervis Bay Territory, and the external territories of the Cocos (Keeling) Islands, Christmas Island, Coral Sea Islands, and Ashmore and Cartier Islands, make up the non-self governing territories of Australia.

The resident communities in each of Jervis Bay Territory, the Cocos (Keeling) Islands and Christmas Island are provided with an extensive range of government services. Each of the Cocos (Keeling) Islands and Christmas Island has an elected local government, and residents may vote in Commonwealth parliamentary elections in the

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#### 4.6 ADMINISTRATORS—December 2009

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Northern Territory	The Hon. Thomas Pauling AO QC
Norfolk Island	The Hon. Owen Walsh (acting)

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Source: Library of the Commonwealth Parliament.

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#### 4.7 CHIEF MINISTERS—December 2009

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Northern Territory	The Hon. P Henderson MLA (ALP)
Australian Capital Territory	The Hon. J Stanhope MLA (ALP)
Norfolk Island	The Hon. A Nobbs MLA

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Source: Library of the Commonwealth Parliament.

electorate of Lingiari (Northern Territory). Residents of Jervis Bay Territory are enrolled in the Commonwealth electorate of Fraser (Australian Capital Territory).

Australia's activities in its Antarctic Territory are governed by the *Antarctic Treaty* (1959) (see the article *Australia and Antarctica* in *Year Book Australia 2007*). Under this agreement the nations active in Antarctica consult on the uses of the continent, with a commitment that it should not become 'the scene or object of international discord'.

## Local government

Local government has a limited constitutional position in Australia, being organised under state or territory legislation upon broadly similar lines across Australia. There are no local councils in the Australian Capital Territory, where the Territory government has direct responsibility for local services. Local government in Australia provides a relatively narrow range of services compared with many other nations.

Each state and the Northern Territory has a number of local government areas, known variously as cities, towns, municipalities, boroughs, shires or districts. The main variation is the existence of various councils in the Northern Territory that are based on rural indigenous communities. The generic local body is the council. In October 2009 there were 563 local councils. Councillors and aldermen are elected by local residents, though councils may be dismissed by state governments – and occasionally are.

Within each local government area various services are provided, though there are many variations between states as well as between urban and rural councils. The Brisbane City Council is responsible for the provision of a wide range of services across most of Brisbane; by contrast, many small rural councils provide a relatively small number of services. Local government responsibilities include the management of health, welfare, sanitary and garbage services, road, street and bridge construction, water supply and sewerage, museums, fire brigades, harbour services, town planning and local libraries. The scope of local government duties differs a great deal around the nation, for in all states many of the responsibilities of a local nature are performed

either directly by the state government or through semi-government authorities, known as statutory authorities. The provision of household water, for instance, is typically undertaken by a statutory authority operating under state legislation.

## Public service

### Numbers

An essential part of government in Australia is the public service that exists at each level. The total number of such employees at June 2008 was 1,751,400 persons, or approximately 16% of the entire Australian workforce.

### Agencies

Public servants are employed by:

- Commonwealth departments of state, such as the Department of Defence
- state departments, such as education departments
- territory departments, such as the Australian Capital Territory and Northern Territory Departments of Chief Minister
- parliamentary departments – Commonwealth, state and territory
- the staff of members of parliament
- ministerial staff
- government-owned companies
- statutory authorities, such as the various state electricity authorities
- local government employees.

### Functions

There are three main functions performed by the public service agencies:

- policy advice
- the oversight of policy implementation
- the provision of the administrative machinery required to deliver the policies of the relevant government or agency.

## Political parties

### The party system

An Australian party system had begun to develop during the last years of the colonial period in the 1890s, to the extent that most seats in the first Commonwealth Parliament were won by candidates from just three major groups, one of which was the Australian Labor Party. The outline of the modern system could be seen by 1910 following the fusion of two non-Labor parties in opposition to Labor. In 1919 the Country Party won a significant number of seats, and by 1923 it had joined the major non-Labor party in the first of many conservative coalition governments. Today the party battle at the Commonwealth level and in New South Wales, Queensland, Victoria and Western Australia is dominated by the contest between Labor and the Liberal and National (formerly Country) parties. In South Australia, Tasmania and the Australian Capital Territory the major contest is between the Liberal and Labor parties, while in the Northern Territory the Country Liberal Party opposes the Labor Party.

Many minor parties have contested House of Representatives and Assembly elections, but only in the Tasmanian House of Assembly and Australian Capital Territory Legislative Assembly elections has the dominance of the major parties been threatened on occasion by minor parties and independents. The use of proportional representation for most of the upper house elections has given minor parties and independents a realistic chance of winning Senate and Legislative Council seats. Since 1980 the major parties have controlled the Senate and Legislative Councils only intermittently.

### Parties and Parliament

Australian parliaments have thus been dominated by the tightly controlled parties since the early 20th century. This has been the key factor in a decline in the significance of parliament relative to that of the executive.

The impact of parties can especially be seen in the operations of each parliamentary house, particularly in the legislative process. Opposition parties spend much time criticising governments and legislative amendments are often moved. However, because governments usually enjoy a majority in these lower houses, questions may be avoided, amendments cannot be forced, and whether or not opposition views are accepted depends on the wishes of the government of the day.

It has been a different story whenever the Senate and the Legislative Councils have not been controlled by government, for the upper houses are powerful and all can alter or reject government legislation. When a government controls an upper house, however, that body's influence upon legislation tends to decline. For example, when the coalition Commonwealth Government controlled both national houses from July 2005 to July 2008, the Senate's impact on legislation was lessened significantly.

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The Australian Constitution is reproduced in *Year Book Australia* from time to time, the latest being the 1998 edition. Details of constitutional referendums are found in *Year Book Australia 1974*, *Year Book Australia 1977–78* and *Year Book Australia 1986*.

In *Year Book Australia 1924* the names are given of each ministry from Federation until February 1923. *Year Book Australia 1953* contains a list of ministries which covers the period between February 1923 and July 1951. The names of members of subsequent ministries are listed in issues of *Year Book Australia 1953 to 1975–76* inclusive, and in successive issues from 1980.

Full details of Commonwealth elections are issued by the Australian Electoral Commission following each election. State and territory election details are issued by the relevant electoral offices or commissions.

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# 5

## INTERNATIONAL RELATIONS

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Australia's foreign and trade policies are designed to advance the security and prosperity of Australia and Australians in an increasingly complex and challenging international environment. Australia's foreign and trade policies and overseas aid program contribute importantly to achieving Australia's goals as a creative middle power.

The Australian Government's operational environment continues to present both opportunities and challenges. Opportunities include expanded trade access, new security cooperation and broader bilateral and multilateral cooperation on shared goals. The unpredictable nature of the external environment is a key risk that has the potential to affect Australian security and economic interests such as terrorism and transnational threats, as well as climate change.

Australia pursues bilateral, regional and multilateral strategies to advance its national interest. Australia has close bilateral relationships with countries in the region and a strong alliance in the United States of America. Australia is an active member of regional organisations, such as the Asia-Pacific Economic Cooperation forum, the Association of South East Asian Nations Regional Forum, the East Asia Summit and the Pacific Islands Forum.

The Australian Government participates proactively in multilateral organisations. It uses its membership of international bodies, including the United Nations and the World Trade Organization, to work for regional security and stability, trade liberalisation, good governance and human rights as well as sustainable development, among other important goals.



## Australia's credentials and place in the international system

Australia is an independent and outward-looking nation actively involved in international affairs. Australia has close links with North America and Europe and is closely engaged in Asia and the Pacific.

Australia is a stable, democratic society with a skilled workforce and a strong, competitive economy – real gross domestic product (GDP) has grown by an annual average of 3.2 per cent over the past decade. Australia's prosperity is based in large part on international trade and investment. One in five Australian jobs depends on trade.

Australia's cultural diversity, record of constructive international engagement, strong political institutions and liberal democratic values inform its involvement in world affairs.

## Role of DFAT in Australia's international relations

(DFAT) is the principal source of advice to the Australian Government on foreign and trade policy issues, and is responsible for implementing the Government's foreign and trade policies. The Department works to achieve three primary outcomes to advance the interests of Australia and Australians internationally:

- the advancement of Australia's international strategic, security and economic interests including through bilateral, regional and multilateral engagement on Australian Government foreign and trade policy priorities
- the protection and welfare of Australians abroad and access to secure international travel documentation through timely and responsive travel advice and consular and passport services in Australia and overseas, and
- a secure Australian Government presence overseas through the provision of security services and information and communications technology infrastructure, and the management of the Commonwealth's overseas owned estate.

## Australia's bilateral relationships

Australia fosters significant relationships with a range of countries on the basis of shared interests. As a medium-sized power, Australia's international engagement focuses on those countries with the greatest influence on its strategic and economic situation.

### United States of America (USA)

The USA is Australia's closest security ally and its most important economic partner. Australia engages closely with the USA and advocates views across a broad range of international issues. The relationship with the USA complements Australia's commitment to the Asia-Pacific region, where the US's engagement contributes to security and prosperity.

At the heart of security relations between Australia and the USA is the ANZUS Treaty, signed in 1951 and in effect since 1952. The treaty binds the two countries in mutual cooperation on military and security issues and contains a commitment that both Australia and the USA will act to meet common dangers. Australia invoked the ANZUS Treaty for the first time following the terrorist attacks on 11 September 2001, when it deployed forces to Afghanistan.

Strengthened by nearly 60 years of cooperation, the ANZUS alliance continues to underpin a dynamic and broad-ranging security relationship. Under the alliance, Australia and the USA hold joint defence exercises, share strategic assessments and exchange intelligence and personnel. Defence technology and procurement cooperation under the alliance is vital to maintaining the qualitative edge of Australia's defence forces. The two countries cooperate extensively on counter-terrorism, non-proliferation and humanitarian and disaster relief activities.

The Australia-United States Ministerial Consultations (AUSMIN) are held between Australian foreign and defence ministers and their US counterparts, the Secretaries of State and of Defense, on a regular basis to discuss strategic issues of mutual concern. The strength of the alliance with the USA was reaffirmed at the last AUSMIN, held in Washington, USA in April 2009. AUSMIN outcomes included an agreement to explore strengthening bilateral civil-military

cooperation, including in addressing the needs of fragile states; and an agreement on principles that will guide greater cooperation on intelligence, surveillance and reconnaissance, and cyber security.

Australia's Prime Minister Kevin Rudd visited the USA in March, September and November 2008 and in March, September and December 2009. The Minister for Foreign Affairs Stephen Smith visited the USA in January and September 2008 and in April and September 2009. The Minister for Trade Simon Crean visited the USA in January, June and December 2008 and in March and October 2009. At Mr Smith's invitation, former US Secretary of State Ms Condoleezza Rice visited Australia in July 2008. Other Australian Ministers visited the USA in the past year to advance Australian priorities in defence, the G20, climate change, innovation, economic recovery, education and environmental cooperation.

The Australia-US Free Trade Agreement (AUSFTA) entered into force on 1 January 2005, providing significant new opportunities for Australian exporters and investors. The Australia-United States Ministerial Trade Talks (AUSMINTT), which review implementation of AUSFTA and provide the opportunity to discuss a broad range of bilateral, regional and global trade and economic issues that impact on Australian and US interests, met in Newark, New Jersey in June 2008 and in Washington in October 2009.

The USA is one of Australia's top merchandise trading partners, its largest services trading partner and its leading source of foreign investment. In 2008 Australia exported goods and services to the USA worth \$18.3 billion and imported goods and services from the USA worth \$36.5 billion. Major Australian exports to the USA include professional services, beef, alcoholic beverages, and crude petroleum. Investment remains a strong feature of the economic relationship, with two-way investment valued at \$813 billion at the end of 2008.

People-to-people ties, including educational and cultural links, are extensive. In 2008-09, 370,866 visitor visas were granted to US citizens – the second-largest source after the United Kingdom. Over the same period, 9598 student visas were granted to US citizens – the eighth-largest source. A Work and Holiday Memorandum of Understanding between Australia and the USA,

which allows tertiary students to undertake a gap year in the USA, came into effect in October 2007.

## Japan

Australia's close relationship with Japan continues to draw strength from long-established common interests and values. Both countries are industrialised democracies, committed to prosperity and stability in the Asia-Pacific region and key allies of the United States of America. Australia and Japan are working together to identify new areas to broaden the existing partnership on security matters, including counter-terrorism and counter-proliferation. Japan and Australia also have an extensive record of cooperation in areas such as humanitarian relief, peacekeeping, responding to the global financial crisis, and responding to climate change.

Japan underwent a historic change of government in August 2009 with the Democratic Party of Japan winning power after 54 years of nearly continuous rule by the Liberal Democratic Party. The Australian Government has engaged early with the new Government. The Prime Minister Kevin Rudd and the Minister for Foreign Affairs Stephen Smith both met their counterparts at the UN General Assembly in New York in September 2009. The Minister for Trade Simon Crean's visit to Japan in October 2009 – the first there by an Australian Cabinet Minister since the new Japanese Government's election – highlighted Australia's continued commitment to working closely with Japan across a range of issues.

Cooperation on defence and security issues continued to develop strongly. Australia and Japan are implementing the Joint Declaration on Security Cooperation, signed by the then Prime Ministers of Australia and Japan in 2007, through an Action Plan. The Declaration is the most ambitious security arrangement that Japan has entered into with any country other than the United States and encompasses regular foreign and defence ministers talks, joint exercises and training. The Action Plan to implement the Joint Declaration will be updated in due course to reflect the evolving security relationship. The second joint Foreign and Defence Ministers' meeting was held in Tokyo in December 2008.

Mr Smith and his US and Japanese counterparts, Ms Hillary Clinton and Mr Katsuya Okada, held the fourth ministerial meeting of the Trilateral

Strategic Dialogue (TSD) in September 2009 to exchange views on a number of regional and global issues of mutual interest. The TSD is a valuable forum for cooperation on common strategic interests which promote stability and security in the Asia-Pacific region and globally. Australia and Japan also co-chair the International Commission on Nuclear Non-proliferation and Disarmament, established by Prime Minister Rudd and his then Japanese counterpart, Mr Yasuo Fukuda, in July 2008. The two countries are working closely through the Commission in support of the international non-proliferation regime and to bring about nuclear disarmament.

Japan has been Australia's largest export market for 40 years. Merchandise exports to Japan totalled \$52.5 billion in 2008–09, more than the combined value of goods exports to China and the United States. In 2008–09, Japan was Australia's top export market for coal, beef, aluminium, liquefied natural gas (LNG), dairy products and woodchips. Japan was also Australia's third largest source of foreign investment, with a total stock of investment worth \$89.5 billion at the end of 2008. The inaugural Australia-Japan Trade and Economic Ministerial Dialogue was held by Mr Crean and his Japanese counterpart, Mr Masayuki Naoshima, in Tokyo in October 2009.

Negotiations on a bilateral Free Trade Agreement (FTA) commenced in 2007, and have continued to make good progress. The tenth round of negotiations was held in November 2009. Both sides have recently reaffirmed their commitment to a comprehensive, World Trade Organization (WTO)-consistent FTA which will deliver economic benefits to both countries.

The cultural relationship between the two nations continues to grow. There are currently 16 Australia-Japan and Japan-Australia societies providing grass-roots community support to the relationship, as well as 99 sister city alliances. The Australian and Japanese Governments are also supporting grassroots efforts to increase Japanese language learning in Australia and related exchanges, including proposals made at the 5th Australia-Japan Conference in November 2008.

## China

Australia's relationship with China has continued to grow and mature. Australia's constructive and friendly relationship with China is built on the

basis of mutual respect, and recognition of shared interests as well as differences. China's importance to Australia has grown with China's increasing economic, political and strategic weight in the Asia-Pacific region, and in the global economy. In 2008–9, China was Australia's largest trading partner.

Australia engages with China on various issues of mutual interest, including the G20 response to the global economic crisis, climate change, nuclear non-proliferation, the WTO Doha Round and development assistance in the South Pacific. Australia and China have regular bilateral dialogues on climate change, consular issues, human rights and regional security.

In 2008–9, Australia's trade with China reached \$83.0 billion. Australia exported goods and services worth \$44.4 billion to China. Major Australian exports to China included iron ore, education services, coal, alumina, wool and copper ores.

Frequent high-level visits between Australia and China have strengthened the relationship. Over the past year, the Minister for Trade Simon Crean has made four visits to China to promote Australia's trade and economic interests in China's rapidly developing inland regions, and to advocate Australia's interests in the FTA negotiations.

In March 2009 the Minister for Foreign Affairs Stephen Smith visited China for the second Australia–China Strategic Dialogue with his counterpart Mr Yang Jiechi.

Australia and China concluded a joint statement on the bilateral relationship during Vice Premier Li Keqiang's visit in October 2009. The joint statement – the first since 1972 – reaffirmed the two sides' willingness to enhance cooperation in various fields, and promote the expansion of the relationship.

Chinese Communist Party Politburo Standing Committee members, Mr Zhou Yongkang (November 2008) and Mr Li Changchun (March 2009) visited Australia. These visits were part of the regular bilateral exchange of visits by senior government and political leaders.

The Australia-China Council continued to play a significant role in building understanding in

China of contemporary Australia's scientific, technological and educational outlook.

Within the framework of its one-China policy, Australia promoted important economic, trade, cultural and people-to-people links with Taiwan.

## **Korean Peninsula**

Australia's bilateral relationship with the Republic of Korea (ROK) continues to grow stronger and deeper, building upon shared democratic values, common strategic interests and substantial and complementary economic ties.

The ROK was Australia's third largest merchandise export market in 2008–09, with exports totalling \$19.2 billion for the financial year. This is an increase of 35.1 per cent year-on-year, due to the higher value of iron ore and coal sales, which accounted for over half of merchandise exports. The largest merchandise export items in 2008–09 were coal (\$7.0 billion), iron ore (\$3.4 billion) and crude petroleum (\$2.3 billion). Refined petroleum and passenger motor vehicles are Australia's largest import items from the ROK. Services exports in 2008–09 were valued at \$1.8 billion. The ROK was Australia's eighth-largest source of visitor arrivals and third-largest source of overseas student enrolments.

Visits to the ROK by the Prime Minister Kevin Rudd in August 2008, and by the President of the ROK, H.E. Mr Lee Myung-bak, to Australia in March 2009, and ministerial visits both ways (ROK Minister for Trade Kim Jong-hoon in May 2009, Minister for Trade Simon Crean in October 2009, Foreign Minister Stephen Smith in December 2009), enhanced significantly relations between the two countries.

On 5 March 2009, in Canberra, Prime Minister Rudd and President Lee released a Joint Statement on Enhanced Global and Security Cooperation between Australia and the Republic of Korea. The Statement built on the significant security cooperation that already existed and paved the way for closer cooperation bilaterally, and in regional and multilateral fora, across a range of fields, including law enforcement, border security, counter-terrorism, disarmament and non-proliferation and disaster response. It also provided a framework for expanding practical defence cooperation in areas such as military information sharing, peacekeeping, civil-military

cooperation, joint exercises and training, and defence industries.

Prime Minister Rudd and President Lee also agreed to launch negotiations on a bilateral free trade agreement. The Minister for Trade Simon Crean and the ROK Minister for Trade, H.E. Mr Kim Jong-hoon, launched the first round of negotiations in Melbourne on 18 May 2009. Officials then held four days of negotiations in Canberra. The second round of negotiations was held in Seoul from 31 August to 4 September 2009, and a third round was held from 30 November to 4 December 2009.

Australia continued to work closely with the United States, Japan, the ROK and other countries in support of international efforts to bring about an end to the nuclear weapons program of the Democratic People's Republic of Korea (DPRK).

The Australian Government publicly condemned the DPRK's launch on 5 April 2009 of a long-range ballistic missile and its nuclear test on 25 May 2009. Australia urged members of the United Nations Security Council (UNSC) to respond strongly to the nuclear test and welcomed the UNSC's unanimous adoption on 12 June 2009 of Resolution 1874 condemning the test and building upon the sanctions imposed against the DPRK in Resolution 1718, which the UNSC had adopted following the DPRK's first nuclear test in October 2006.

Australia implemented the sanctions mandated by UNSC Resolution 1874 with the necessary amendments to Australian regulations, made on 11 July 2009. Australia continues to implement fully UNSC Resolution 1718 and to maintain autonomous sanctions comprising restrictions on travel to Australia by DPRK nationals, a ban on port entry by DPRK-flagged ships and financial sanctions against named entities linked to the DPRK's weapons of mass destruction (WMD) programs.

Australia continued to support the Six-Party Talks process comprising the ROK, DPRK, the United States, China, Japan and Russia, including by supporting efforts to persuade the DPRK to reverse its position to quit the talks (announced in April 2009). During visits to Pyongyang by Australia's non-resident Ambassador (based in Seoul) in March 2009 and June 2009, and in other diplomatic exchanges, Australia urged the DPRK

to work constructively with its Six-Party partners, abide by its Six-Party Talks commitments and its obligations under UNSC Resolutions and abandon its nuclear weapons program. Australia also urged the DPRK to work to improve relations with Japan and the ROK, and raised Australia's concerns about the DPRK's human rights record.

Australian bilateral development assistance to the DPRK has been suspended since 2002, but Australia has continued to provide humanitarian assistance, without linkage to political considerations, through UN agencies and the Red Cross. The value of this assistance in 2008-09 totalled \$6.75 million.

## Indonesia

Australia and Indonesia are close neighbours enjoying a wide-ranging relationship encompassing political, security, commercial, cultural and people-to-people links. The relationship is underpinned by frequent two-way high-level visits. Australia and Indonesia are cooperating closely on counter-terrorism, people smuggling, transnational crime, illegal fishing and climate change.

On 13 November 2006, Australia and Indonesia signed the Agreement on the Framework for Security Cooperation (the Lombok Treaty), which came into force in February 2008. Indonesian and Australian officials adopted a Lombok Treaty Plan of Action in November 2008, which outlined a work agenda to enhance cooperation in a range of fields, including defence, law enforcement, counter-terrorism, and disaster response.

Australia provided an estimated \$482.4 million in official development assistance to Indonesia in 2008-09, through a country program and ongoing commitments under the Australia-Indonesia Partnership for Reconstruction and Development (AIPRD), which saw \$1 billion committed in grants and loans following the Indian Ocean tsunami of 2004. Australia's assistance focuses on four areas: sustainable growth and economic management, improving service delivery, democracy, justice and good governance, and safety and peace.

The Australia-Indonesia Ministerial Forum (AIMF) and the Australia-Indonesia Trade Ministers' Meeting (TMM) are key platforms for enhancing cooperation between the two countries. The AIMF last met in Canberra on 12 November 2008,

and was attended by seven Australian and six Indonesian ministers. After the forum, Ministers released a Joint Statement on People Smuggling and Trafficking in Persons. The AIMF, established in 1992, is the peak bilateral consultative forum between the two governments.

The last TMM was held in Sydney in February 2009. At the TMM, the Australian and Indonesian Trade Ministers welcomed the public release of an Australia-Indonesia Free Trade Agreement Joint Feasibility Study, which found that a comprehensive FTA between Australia and Indonesia could build on the solid foundation of the ASEAN-Australia New Zealand FTA.

The bilateral trade relationship remains steady with two-way trade totalling \$11.5 billion in 2008, making Indonesia our 13th largest trading partner. Australia's merchandise exports were valued at \$4.3 billion and services exports were valued at just over \$1 billion in 2008. Australia's major exports to Indonesia include wheat, aluminium, live animals, education-related travel and copper.

People-to-people links are an important part of Australia-Indonesia relations. From 19-21 February 2009, Australia hosted a major conference, *Australia-Indonesia: Partners in a New Era* in Sydney. The conference drew the largest Indonesian delegation to ever visit Australia. Over 140 Australian and Indonesian delegates participated from a range of sectors, including politics, business, the public service, media, academia, civil society and the arts. Participants engaged in a lively exchange of ideas on the core conference themes of democracy and governance, economic development, trade and investment, the environment, and people and perceptions. In 2008-09, there were over 16,000 Indonesian student enrolments in Australia. Australia also promotes bilateral understanding and exchanges through the Australia-Indonesia Institute, established by the Australian Government in 1989.

## India

Australia has placed India in the front rank of its international partnerships and is engaging with India on a long-term, strategic basis. Both Governments recognise there is significant potential for further cooperation across a broad range of areas. The bilateral relationship has a strong institutional framework that includes a

Foreign Ministers Framework Dialogue (FMFD), a Joint Ministerial Commission involving trade ministers, senior officials' talks and a strategic dialogue. Seven Australian Ministers, including the Prime Minister, visited India in 2009.

The Prime Minister Kevin Rudd visited India from 11–13 November 2009. He and Indian Prime Minister Manmohan Singh issued a joint statement that included agreement to upgrade relations between the two countries to the level of a "Strategic Partnership." As part of the Strategic Partnership, Australia and India issued a Joint Declaration on Security Cooperation that will see the two countries intensify their efforts to maintain peace, stability and prosperity and put in place mechanisms to ensure closer and more regular collaboration in security areas. The Prime Minister announced that Australian representation in India would significantly expand with six additional Australia-based staff in New Delhi, including new positions from the Treasury, the Department of Resources, Energy and Tourism, the Australian Federal Police, the Department of Immigration and the Australian Customs Service. Mr Rudd also announced Australia would expand Austrade's network of Indian national trade and commercial staff across a large number of regional cities and also establish a new Investment Commissioner position in Mumbai. Australia will expand its official presence in Mumbai by three Australia-based staff and in Chennai by four Australia-based staff, opening new DFAT posts in each city.

The Australia-India economic relationship has grown steadily in recent years and has the potential to increase considerably as India's economic expansion continues. Australia's strength in exporting primary products, particularly minerals and fuels, positions us well to supply growing Indian industrial and consumer demand. Two-way trade totalled nearly \$19 billion in 2008.

The Australian Government established the Australia-India Council in 1992 to broaden and deepen bilateral contacts and understanding.

### **Association of South-East Asian Nations (ASEAN) and regional issues**

Australia attaches priority to its relationship with ASEAN, which is a key regional institution

comprising Brunei Darussalam, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam. Australia was the first country to become a dialogue partner of ASEAN, in 1974, and participates in a number of important ASEAN-related meetings, notably the East Asia Summit (EAS), the ASEAN Regional Forum (ARF) and the ASEAN Post Ministerial Conference.

In 2009, a comprehensive ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA) was signed and came into force on 1 January 2010. Australia and ASEAN signed a Joint Declaration for Cooperation to Combat International Terrorism in 2004 and finalised a work programme to implement the Joint Declaration in June 2007, which is currently being updated. On 10 December 2005, then Minister for Foreign Affairs Alexander Downer signed the instrument of accession to the ASEAN Treaty of Amity and Cooperation.

In August 2007, Australia and ASEAN signed a Joint Declaration on an ASEAN-Australia Comprehensive Partnership which provides a framework for the future direction of Australia's engagement with ASEAN. The ASEAN-Australia Development Cooperation Program Phase 2 (totalling \$57 million over seven years), is a flagship program supporting ASEAN's economic integration and demonstrating Australia's commitment to promoting economic growth in the ASEAN region.

In June 2008 the Prime Minister launched an initiative to create a new Asia Pacific community to cover the full range of challenges facing the region. In December 2009, after extensive regional consultations, Australia hosted a conference involving over 140 senior government officials, academics and experts from the region to discuss the initiative.

### **East Asia Summit (EAS)**

Australia's close and long-standing engagement in the east-Asian region was bolstered further when Australia became a founding member of the EAS, with then Prime Minister John Howard attending the inaugural Leaders' meeting in Kuala Lumpur on 14 December 2005. The Prime Minister, Kevin Rudd, attended the Fourth EAS on 24–25 October 2009. The EAS brings together leaders from the ten ASEAN countries as well as Australia, China, Japan, India, New Zealand and the ROK for

strategic dialogue and action on key challenges facing the region. EAS leaders meet annually as part of the ASEAN Summits, with a number of ministerial and senior officials' meetings held during the year to progress initiatives agreed by Leaders.

The 16 EAS countries represent collectively 49 per cent of the world's population and account for almost 30 per cent of global GDP, and the region is expected to see sustained economic growth. With the 15 other EAS member countries accounting for nearly 60 per cent of Australia's goods and services export markets, the grouping is of key economic and strategic importance.

### **Bilateral relationships with ASEAN member countries**

Australia has substantial relationships with many of the individual members of ASEAN. Australia has signed FTAs with Singapore and Thailand and negotiations are ongoing on a possible Malaysia-Australia FTA.

Singapore is Australia's largest trade and investment partner in ASEAN. In 2008–09, goods and services exports to Singapore were valued at \$5.5 billion and \$3.9 billion respectively, while goods and services imports from Singapore were valued at \$13.4 billion and \$4.8 billion. Australia's largest export to Singapore in 2008–09 was crude petroleum. Singapore is a significant source of foreign investment into Australia, with total Singaporean investment stock at the end of 2008 valued at \$43 billion. In May 2009, the Prime Minister, Kevin Rudd, visited Singapore to deliver the keynote address at the Shangri-La Dialogue. In July 2009, Singapore hosted the sixth Singapore Australia Joint Ministerial Committee meeting, attended by the Foreign, Defence and Trade Ministers of both countries. Ministers discussed wide-ranging areas of bilateral cooperation, including in relation to the Memorandum of Understanding on Defence Cooperation signed by Prime Minister Lee and Prime Minister Rudd in August 2008. In addition, the Trade Ministers announced the substantive conclusion of the second review of the Singapore Australia Free Trade Agreement (SAFTA).

Bilateral cooperation with Thailand continues to be enhanced by people-to-people links through the work of the Australia-Thailand Institute. The Thai economy felt the impact of the global

economic crisis. However, trade and commercial relations with Thailand have remained robust, with total two-way trade in 2008 reaching over \$18 billion. The inaugural Australia-Thailand Joint Commission on Bilateral Cooperation, co-chaired by Foreign Ministers Mr Stephen Smith and Mr Kasit Piromya, was held in Perth in May 2009.

Australia's relationship with Malaysia is diverse and underpinned by strong people-to-people links, notably in education. The Australia-Malaysia Institute was established in 2005 to strengthen further people-to-people and institutional links between Australia and Malaysia, and to deepen mutual understanding and cooperation.

Substantial defence cooperation takes place through the Malaysia-Australia Joint Defence Program, an ongoing Australian presence at the Royal Malaysian Air Force Base at Butterworth and common membership of the Five Power Defence Arrangements. Prime Minister Rudd visited Malaysia in July 2008 and again in July 2009. Foreign Minister Smith visited Malaysia in July 2009 to attend the inaugural Australia Malaysia Foreign Ministers' Forum. In August 2009, the Minister for Trade Simon Crean hosted an Australia Malaysia Joint Trade Committee meeting. In 2008-09, Australia exported goods and services to Malaysia valued at \$3.7 billion and \$1.5 billion respectively, and imported goods and services valued at \$8.3 billion and \$1 billion. Negotiations towards a Malaysia Australia Free Trade Agreement are ongoing.

Bilateral contacts with the Philippines are growing, particularly within the development cooperation, counter-terrorism, defence and commercial fields. The Minister for Foreign Affairs and the Minister for Trade visited the Philippines for bilateral talks in October 2008 and President Arroyo made an official visit to Australia in May 2007. Australia will provide an estimated \$123 million in development assistance to the Philippines in 2009-10, intended to contribute to economic growth, basic education, national stability and human security. Bilateral economic cooperation has focused on enhancing opportunities for Australian businesses in the mining sector as well as enhancing the Philippines' capacity in sustainable mining development practices.

Australia's relations with Burma have, for many years, been held back by Burma's political circumstances. Australia takes all appropriate

opportunities to urge the Burmese regime to work towards genuine democratic reform and national reconciliation, and to address human rights concerns, both in direct representations to the Burmese regime, and in regional and international fora, including UN bodies. Australia supports UN engagement on Burma and works closely with partners in the region to encourage political reform. Australia maintains pressure on the Burmese regime through financial sanctions and travel restrictions. Australia made strong representations to the regime over the conviction of Aung San Suu Kyi in August 2009, and over the ongoing detention of more than 2000 political prisoners. Australia's Chargé d'Affaires in Rangoon, together with the UK Ambassador and the US Deputy Head of Mission, met Aung San Suu Kyi on 9 October 2009 to discuss sanctions. This was the first opportunity for a substantive exchange of views by Australian officials with Aung San Suu Kyi since 2003.

The Australia Vietnam Comprehensive Partnership was signed on 7 September 2009, in Canberra, by Deputy Prime Minister Julia Gillard, and Dr Pham Gia Khiem, Vietnam's Deputy Prime Minister and Minister of Foreign Affairs. The signing took place during the visit to Australia of Mr Nong Duc Manh, General Secretary of the Communist Party of Vietnam. The Comprehensive Partnership was developed to reinforce the strong relations between Australia and Vietnam, and to provide a framework around which to focus and measure bilateral effort. Key areas under the Comprehensive Partnership include: expanding political ties and public policy exchanges; promoting economic growth and trade development; ongoing development assistance and technical cooperation; supporting people-to-people links; building defence and security ties; and advancing the global and regional agenda.

### **East Timor (Timor-Leste)**

Australia is at the forefront of international efforts to help East Timor become a peaceful and more prosperous nation. Australia led the International Force for East Timor which restored security after the August 1999 ballot on East Timorese independence, and continues to lead the International Stabilisation Force (ISF) which helped restore stability after unrest in mid-2006. The ISF remains in East Timor in support of the United Nations Integrated Mission in Timor-Leste.

Australia is also supporting the development of East Timor's own defence and police forces. As the largest bilateral aid donor, Australia has demonstrated a commitment to East Timor's long-term future development, providing an estimated \$820 million in Official Development Assistance from 1999 to June 2009. The Prime Minister of East Timor, Mr Kay Rala Xanana Gusmao, paid an official visit to Australia in August 2008.

### **South Asia**

Australia maintains productive political and economic relationships with the countries of South Asia. Economic links are dominated by Australia's partnership with India (see separate entry). We have long standing and good relations with Bangladesh, which is an important counter-terrorism and security partner for Australia. Australia welcomed the end of the decades-long conflict in Sri Lanka in May 2009. Australia is committed to helping Sri Lanka in efforts to resettle displaced population and rehabilitate communities. Australia's historic links to Sri Lanka provide potential for greater bilateral engagement, including through increased trade and investment.

### **Canada**

The Australia-Canada relationship is mature, highly productive and broadly based, and has its foundations in our historical and cultural links. Trade relations stretch more than 100 years and 2010 will mark the 70th anniversary of formal diplomatic links. People-to-people contact between our parliaments, government officials, private sectors and academia is wide-ranging. A comprehensive range of bilateral agreements cover trade, social security, air services, consular services abroad, mutual assistance in criminal matters and avoidance of double taxation. Canada is Australia's 21st-largest merchandise trading partner, with two-way trade amounting to approximately \$4 billion in 2008 (\$1.5 billion in exports and \$2.5 billion in imports).

In addition to an active trade and investment relationship, Australia and Canada cooperate closely on international security (including in Afghanistan, where both countries have troops deployed), counter-terrorism, human rights and environmental issues. In multilateral forums Canada and Australia, along with New Zealand, work closely in the UN (in the informal CANZ



grouping). As agricultural exporting countries, Australia and Canada also cooperate in the WTO and as members of the Cairns Group to work towards freer trade in agricultural products. Canada will host the G20 Summit in 2010.

## **New Zealand**

Australia and New Zealand share a close and diverse relationship, underpinned by extensive and high-level government-to-government interaction and strong business and people-to-people linkages. Bilateral meetings between foreign ministers from the two countries reflect the close foreign policy interests Australia has with New Zealand. Strategic and defence relations are set out in the Canberra Pact (1944), the ANZUS Treaty (1951) and the Australia-New Zealand Closer Defence Relations Agreement (1991).

The trade and investment relationship is underpinned by the 1983 Australia New Zealand Closer Economic Relations Trade Agreement (ANZCERTA), which creates a free trade area between the two countries. An annual ministerial meeting addresses ways of further facilitating the free flow of trade between the two countries. Exports of Australian goods and services to New Zealand were valued at \$9.4 billion and \$3.5 billion respectively in 2008. Australia imported goods and services from New Zealand valued at \$7.6 billion and \$2.5 billion over the same period. Australia's major merchandise exports to New Zealand are crude and refined petroleum, medicaments and motor vehicles. New Zealand is Australia's seventh-largest trading partner and third-biggest investment market.

People-to-people contact between the two countries is extensive. Over half a million New Zealanders live in Australia, while around 65,000 Australians live in New Zealand. The trans-Tasman Travel Arrangements of 1973 allow Australians and New Zealanders to visit, live and work in each other's countries without restriction.

The business-led Australia New Zealand Leadership Forum brings together ministers and business representatives, academics and other senior community leaders to create an independent platform for ways to broaden and deepen the bilateral relationship. The Forum last met in Sydney in August 2009 and involved the two Prime Ministers, 15 ministers and over 100 participants from both countries.

## **Europe**

Australia enjoys close relations with Europe – both with the European Union (EU) and with individual European countries.

As the world's largest economy, trader and aid donor, and home to almost half a billion people, the EU is an important partner for Australia. As a bloc, its 27 member states constitute Australia's largest trading partner and largest source of foreign direct investment. Total two-way trade in 2008-09 was worth \$90.2 billion.

In April 2008, the Prime Minister Kevin Rudd and the European Commission (EC) President José Manuel Barroso jointly committed to a new era of creative, broad-based engagement between Australia and the EU. They agreed to develop an Australia-EU Partnership Framework which, since its launch in October 2008, has been the primary underpinning and driver of the relationship. In its first year the Partnership Framework delivered substantive outcomes, including the signing of the Australia-EC Wine Agreement and the EC's becoming a foundation member of the Global Carbon Capture and Storage Institute. The second iteration of the Framework, launched in October 2009, contains new commitments to further enhance cooperation across five broad objectives. The weblink:

<[http://www.dfat.gov.au/geo/european\\_union/australia\\_partnership\\_framework.html](http://www.dfat.gov.au/geo/european_union/australia_partnership_framework.html)> provides further information.

Increased high-level contact between the two sides during 2008 and 2009 is evidence of the strong and growing relationship, with many Australian Ministers visiting the EU and three European Commissioners visiting Australia. These visits have helped underline commitment by both sides to work together on a range of pressing international issues, including in response to the global financial crisis and climate change.

Australia and the United Kingdom share a particularly close and vibrant relationship based on close historical and people-to-people links, aligned strategic interests and strong bilateral trade and investment. The strength of the relationship is underscored by regular high-level contact. A new National Security Partnership was announced in March 2009 by the two countries' Prime Ministers.

Bilateral relations with other European countries were enhanced by high-level visits from Australia in 2008 and 2009, including Ministerial visits to Belgium, Cyprus, France, Germany, Hungary, Ireland, Italy, Malta, the Netherlands, Norway, Poland, Sweden and Russia. The Prime Minister's visit to Berlin in July 2009 significantly enhanced our relationship with Germany. Attendance by Ministers at Anzac Day commemorations in Turkey and France in 2008 and 2009; the visit to France by the Governor-General and Ministers for the 90th anniversary of Armistice Day in 2008; and Ministerial attendance in 2009 at commemorations of the 70th anniversary of the outbreak of World War II in Poland underscore the continuing relevance of our shared history. The first State Visit by an Australian Governor-General to Malta took place in November 2008. High-level visitors to Australia in 2008 and 2009 included the King and Queen of Spain, the Presidents of Bulgaria, Hungary and Malta, the Prime Minister of the Former Yugoslav Republic of Macedonia, and Ministers from Belgium, Cyprus, Estonia, Ireland, Italy, the Netherlands, Portugal, Slovakia and Turkey. Bilateral agreements signed with European countries during 2008 and 2009 covered a range of issues, including taxation with Belgium, health care with Slovenia, and social security with Finland and Poland.

## Latin America

Australia's relationship with the diverse countries of Latin America includes strong bilateral economic interactions as well as cooperation on multilateral issues of mutual concern such as UN reform, multilateral trade negotiations, sustainable fishing and environmental protection. Latin America is an important destination for Australian investment, primarily in the mining and mining services sectors. Total two-way trade increased by 40 per cent in 2008 over the previous year to reach over \$7 billion. Latin America is one of the fastest-growing sources of foreign students in Australia, with some 28,400 enrolments from Latin America in 2008. Australia is working to enhance its bilateral relationships with a number of Latin American countries through initiatives such as developing a Plan of Action with Brazil for an enhanced partnership, establishment of a Joint Experts Group with Mexico to investigate ways to strengthen the bilateral economic relationship, and negotiating an MOU to strengthen trade and investment links

with Colombia. The Australia-Chile Free Trade Agreement came into force on 6 March 2009. Australia will reopen its Embassy in Peru in 2010. The Council on Australia Latin America Relations has contributed to advancing Australia's economic, political and cultural relations with Latin America since its formation in 2001.

## Pacific

Australia values its close historical, political, economic and community links with the island countries and territories of the Pacific. Australia is the largest provider of development assistance to the Pacific and is playing an active role in the region in support of enhanced security, economic reform and good governance.

Australia is a founding member and major donor to a number of key regional organisations in the Pacific. The Pacific Islands Forum (PIF) is the region's principal political institution bringing together the independent and self-governing states of the Pacific in an annual Leaders' meeting. The 40th Forum meeting was held in Cairns, Australia, from 4–7 August 2009. The key themes of the meeting were addressing climate change, building economic resilience for future growth and strengthening development coordination. Australia's Chairing of the Pacific Islands Forum in 2009–10 is a practical demonstration of Australia's new approach and commitment to the Pacific as outlined in the Prime Minister Kevin Rudd's Port Moresby Declaration of March 2008.

Another outcome of the Forum Meeting was an agreement among Leaders to launch negotiations for a regional trade and economic agreement, known as PACER Plus. Australia's primary motivation for undertaking these negotiations is to improve the economic outlook for Forum Island countries.

Australia has also consolidated key bilateral relationships in the region. The 19th Australia-Papua New Guinea Ministerial meeting, held in Brisbane in June 2009, attracted 17 ministers from PNG, and eight Ministers and three Parliamentary Secretaries from Australia. Eight Pacific Partnerships for Development have been signed – with PNG, Samoa, Kiribati, Solomon Islands, Vanuatu, Tonga, Tuvalu and Nauru. These Partnerships are designed to provide a framework for achieving progress towards the Millennium Development Goals, and

aim to, for example, improve access to quality education, combat malaria, and develop infrastructure to improve access to markets and services.

Australia leads the Regional Assistance Mission to Solomon Islands (RAMSI) which was endorsed by the PIF and deployed to Solomon Islands in July 2003. The intervention followed the collapse of law and order and government institutions as a result of ethnic tensions in Solomon Islands which dated back to the late-1990s. Today, all 16 Forum members participate in RAMSI. Currently there are 561 personnel (including 362 Australians) deployed to Solomon Islands under RAMSI. RAMSI has seen real achievements including the restoration and maintenance of law and order, development of infrastructure projects in rural communities, and progress in telecommunications.

Unfortunately, Fiji's military regime took a number of backward steps, including refusing to meet its commitment to hold elections by March 2009 and the abrogation of its constitution in April 2009. We continued to work with other Pacific Islands Forum Countries and the international community to press the regime to hold elections and return Fiji to democracy and the rule of law.

## **Middle East**

The Middle East is an area of global strategic and commercial importance. Australia has long supported a resolution of the Middle East conflict which recognises the right of Israel to exist within secure and recognised boundaries and establishes a viable Palestinian state. Australia has given more than \$75 million in development and humanitarian assistance to the Palestinians since late 2007.

Australia continues to support democracy and stability in Iraq including for the national election in 2010, the first since 2005. With the cessation of the ADF's Operation Catalyst in Iraq on 31 July 2009, Australia's relationship with Iraq has been focussed on reconstruction and development, and expanding two-way trade. Since 2003, Australia has committed over \$360 million to reconstruction, rehabilitation and humanitarian programs in Iraq.

Australia's commercial interests in the Middle East are expanding, including in agriculture,

manufacturing, metals and services. Australia is negotiating a Free Trade Agreement with the Gulf Cooperation Council (GCC) (Saudi Arabia, Bahrain, Kuwait, Qatar, Oman and the United Arab Emirates). The GCC is a key merchandise export market, and Australia's largest export market for passenger motor vehicles. Egypt remains an important destination for Australian tourists, merchandise (wheat, coal and copper) and investment in mining and resource processing sectors. The Council for Australian-Arab Relations was established by the Australian Government in 2003 to strengthen ties between Australia and Arab countries.

Iran's nuclear program remains of deep concern in the Middle East region and globally. Australia is working closely with the international community in support of finding a diplomatic solution to the Iran nuclear issue.

## **Africa**

Australia is strengthening engagement with all African countries and with the African Union, as the principal body for coordination and integration in the continent. Australia has a significant presence in the mining sector in Africa: current and prospective investment by Australian companies is estimated at \$20 billion and Australian companies are active in 34 of Africa's 53 countries. Australia's largest trading partner in Africa is South Africa.

Australia increased development assistance to Africa by 40 per cent to \$163.9 million in 2009-10 focusing on food security, water and sanitation, and maternal and child health. The Government has increased its scholarship and fellowship program tenfold, expanding to 1,000 by 2012-13, and established the Australia-Africa Partnerships Facility for technical assistance cooperation. Australia provides assistance to Zimbabwe for humanitarian purposes and the restoration of basic services, and maintains sanctions to encourage positive change. Over the past two years, Australia has provided significant humanitarian assistance and food aid to the countries of the Horn of Africa. Since 2005 the Australian Defence Force (ADF) and Australian Federal Police have deployed personnel to the UN Mission in Sudan, and since 2008 the ADF has committed personnel to the UN African Union Mission in Darfur.

## Australia's security interests

Australia attaches high priority to countering the proliferation of Weapons of Mass Destruction (WMD) and achieving the goal of disarmament.

The International Commission on Nuclear Non-proliferation and Disarmament (ICNND), a joint initiative of the Australian and Japanese Governments, was established in 2008. The aims of the Commission are to strengthen the Nuclear Non-Proliferation Treaty (NPT), reinvigorate the global effort against the proliferation of nuclear weapons and make practical recommendations to achieve the ultimate goal of a world without nuclear weapons. The Commission's first major report was released in December 2009.

Australia works to strengthen adherence to and compliance with the major WMD treaties – the NPT, the Chemical Weapons Convention, the Biological and Toxin Weapons Convention and the Comprehensive Nuclear-Test-Ban Treaty.

Australia supports strengthening of the safeguards, safety and security programs of the International Atomic Energy Agency (IAEA). Through active participation in the IAEA and other forums, Australia contributes to international efforts to resolve concerns over the nuclear activities of Iran and the DPRK.

Australia also participates actively in the major WMD export control regimes. Australia chairs the Australia Group, which aims to coordinate export controls covering dual-use chemicals, biological materials, technology and equipment. Australia is a member of the Nuclear Suppliers Group, which aims to prevent civilian nuclear trade from contributing to nuclear weapons programs, and of the Missile Technology Control Regime (MTCR) which seeks to prevent the proliferation of unmanned systems capable of delivering WMD. Australia chaired the MTCR for a year from November 2008. Australia provides practical technical assistance to regional countries to help them improve export control measures so they meet relevant international obligations and strengthen national structures. The Proliferation Security Initiative, which was established to develop practical measures to disrupt illicit trade in WMD, is also a core element of Australia's counter-proliferation strategy.

Countering the proliferation of certain types of conventional weapons is also a priority. Australia

participated in the 'Oslo process' negotiations on banning cluster munitions and signed the Convention on Cluster Munitions on 3 December 2008. Australia promotes the effective implementation of the Mine Ban Convention.

Australia works to counter access to and the effects of illicit small arms and light weapons, particularly in the Asia Pacific region. Australia is advocating the negotiation of an arms trade treaty with the aim of establishing international criteria and standards for the global trade in a range of conventional arms. As a participant in the Wassenaar Arrangement, Australia contributes to the control of the transfer of conventional weapons and defence and dual-use goods.

Terrorism in our region and globally threatens the security and safety of Australia and Australians. Australia is cooperating closely with the international community, bilaterally and multilaterally, to respond to this security challenge. To facilitate this cooperation, Australia has concluded 14 bilateral counter-terrorism Memorandums of Understanding with Turkey, Malaysia, Thailand, the Philippines, Fiji, Cambodia, PNG, Indonesia, India, East Timor, Brunei, Pakistan, Bangladesh and Afghanistan.

Australia's counter terrorism cooperation is concentrated in South-East Asia, where we continue to support regional partners in strengthening their counter-terrorism capabilities in key areas such as law enforcement, legal frameworks, intelligence, border control and transport security, defence engagement, terrorist financing and money laundering, and countering violent extremism. Australia also has strong interests in countering terrorism in South Asia, particularly in Afghanistan and Pakistan.

Australia also works to build political support and technical capability for more effective counter-terrorism efforts in regional and multilateral fora. Australia has deepened its engagement on counter-terrorism efforts with the United Nations and contributes to capacity building activities sponsored by the ASEAN Regional Forum and the Asia-Pacific Economic Cooperation (APEC) forum.

Reducing the threat of chemical, biological, radiological and nuclear (CBRN) terrorism is also an important objective. Australia is an active member of the Global Initiative to Combat Nuclear Terrorism, including hosting in May 2009

an international seminar and discussion exercise to promote the safety and security of radioactive materials. Australia's practical capacity building work in the region promotes awareness of and strengthens the security measures around CBRN sources to deter potential access by terrorists.

Australia's alliance with the United States of America is indispensable to Australia's strategic, defence and security interests. Australia judges that the continued engagement and presence of the United States is crucial to the strategic stability of the Asia-Pacific region. Reflecting shared security interests, the Foreign Ministers of Australia, Japan and the United States of America held a fourth Trilateral Strategic Dialogue Ministerial Meeting in New York in September 2009. Australia is also deepening bilateral defence and security relationships with countries throughout the Asia-Pacific region.

Australia works bilaterally and in regional forums to combat transnational crime. For example, Australia co-chairs with Indonesia the Bali process on people-smuggling, trafficking in persons and related transnational crime. The website at <<http://www.baliprocess.net>> provides more information.

## Australia's economic interests

Successive Australian Governments have recognised the importance of foreign investment inflows to expand the economy over the medium- to long-term. Such investments create new jobs and support existing jobs; boost innovation, research and development; introduce new technologies and techniques; and promote a competitive environment within the business sector. Similarly an open, liberal trading environment provides significant benefits to Australia.

Australia is pursuing an ambitious trade policy agenda, which combines multilateral, regional and bilateral strategies to open new markets, reduce barriers to trade and promote Australian goods and services. The government takes a twin-pillars approach to trade policy. The first pillar is reform *at-the-border* through trade agreements; the second is dealing with the *behind-the-border* issues of structural reform. The Council of Australian Governments (COAG) Ministerial Council on International Trade facilitates cooperation between the

Commonwealth and state and territory governments on measures to enhance Australia's international competitiveness and export performance.

Details of Australia's trade policies and practices are available at <<http://www.dfat.gov.au/trade>>. Trade and economic fact sheets for 175 of Australia's trading partners, including summaries of their trade with Australia, are available at <<http://www.dfat.gov.au/geo/fs>>.

## World Trade Organization (WTO)

Australia has a major stake in maintaining a healthy, rules-based multilateral trading system. Australia is a strong supporter of the World Trade Organization (WTO), the only global body overseeing the rules for trade between countries and the premier forum for multilateral trade liberalisation. Australia's top trade priority remains the successful conclusion of the current round of WTO trade negotiations, known as the Doha Round, which was launched in November 2001. A successful Round would stimulate global economic growth and create substantial new trade opportunities for Australian businesses through global market openings.

Following a period of subdued political engagement on the Round after the breakdown of talks at the WTO Ministerial Meeting in July 2008, engagement intensified in 2009. The global economic crisis has underlined the importance of concluding the Round to safeguard against protectionism and rekindle economic growth through open markets, particularly for those developing countries most affected by the economic downturn.

The Australian Government supports the WTO's monitoring of trade and trade-related measures taken since the beginning of the global economic crisis. The fact that there has not been a descent into high intensity protectionism emphasises the important role of multilateral trade rules in preventing protectionism.

At the G20 Leaders' Summit in Pittsburgh, Leaders committed to refrain from raising barriers or imposing new barriers to trade in goods and services. They reaffirmed their commitment to seek an ambitious and balanced conclusion to the Round in 2010 and asked Trade Ministers to take stock of the situation no later than early 2010. The Australian Government is committed to

using all opportunities of engagement to achieve this.

The Australian Government's objective is to maximise market access for agriculture, industrial products and services, as well as to reduce trade-distorting subsidies and further strengthen WTO rules.

With agricultural trade highly distorted by barriers as well as subsidies, Australia has been a strong voice for reform in the Round, particularly as leader of the Cairns Group. A coalition of 19 agricultural exporting countries from the Americas, Africa, Asia and the Pacific, the Cairns Group plays an influential role in the negotiations.

Australia also continues to work in the Round for tangible improvements in market access for industrial products (including manufactured goods, minerals, energy, forestry and fisheries). Broad agreement has been reached on the formula for cutting tariffs on industrial products, but significant differences remain on the need for additional liberalisation at the sectoral level.

Service industries comprise the largest sector of the Australian economy, accounting for 70 per cent of GDP and employing more than four out of five Australians. Accordingly, the Australian Government gives high priority to the Doha negotiations on services. Australia's main objectives are to make it easier for Australian services providers to establish operations overseas, for professionals to work temporarily overseas, and to ensure regulations do not act as unjustifiable barriers to trade.

Given its strong research tradition and need to access new technologies, Australia is active in the WTO in protecting its intellectual property interests, particularly through the effective implementation of the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights.

Beyond the Doha Round, Australia uses the WTO in a number of ways to advance its trade interests. The WTO dispute settlement system enables countries to seek binding rulings where they consider others are not applying WTO trade rules correctly. It has removed some of the most distorting global trade practices. Australia also negotiates with countries seeking to join the WTO to ensure that they make appropriate

commitments to liberalise their markets. Australia contributes to the WTO's development activities to assist developing countries' fair participation in the multilateral trading system. Australia participates regularly in a wide range of WTO committee meetings, such as the Committees on Agriculture and on Regional Trade Agreements.

## **Asia-Pacific Economic Cooperation (APEC)**

APEC has evolved to become the leading economic forum in our region, bringing together the Leaders of 21 Asia-Pacific economies, including many of Australia's major trading partners. APEC economies account for 68.1 per cent of Australia's two-way trade in goods and services. Together, APEC economies account for 54.2 per cent of global GDP, 43.7 per cent of world trade and around 40.5 per cent of the world's population. APEC is a major driving force in promoting open trade and investment, sustainable economic development and prosperity in our region. APEC celebrates its 20th anniversary in 2009.

Australia plays a leading role in APEC, driving an ambitious agenda to: provide support and momentum to the multilateral trading system; accelerate regional economic integration through trade; facilitate trade and investment liberalisation; intensify structural economic reform; and promote human security and institutional reform. Australia assisted Singapore in 2009 to drive the implementation of the initiatives set in train during Australia's host year in 2007.

Australia is actively involved in efforts to facilitate trade in services, make rules of origin more 'business friendly', enhance trade logistics, conduct analytical work on a possible Free Trade Area of the Asia Pacific (FTAAP), and implement APEC's trade and investment facilitation action plans. It has also contributed substantially to an APEC initiative to promote expanded trade in environmental goods and services.

Australia was instrumental in helping to secure APEC agreement on the fundamental importance of tackling 'behind-the-border' barriers to trade and investment. Australia has been vocal in APEC on the importance of structural economic reform as a way to boost growth and productivity, and to

insulate the Asia-Pacific region from external economic shocks. Australia is working with APEC partners to identify how different institutional frameworks, processes and strategies could help economies successfully achieve reform.

Australia supports APEC's human security agenda to build resilience to disruptions to regional prosperity and stability, including from terrorism, disasters and disease. Australia co-chaired, with Indonesia, APEC's Task Force on Emergency Preparedness. Australia announced an additional \$1 million contribution for APEC human security projects in November 2008.

To strengthen APEC's links with business, Australia provides financial support to Australia's APEC Business Advisory Council members – three top Australian business leaders appointed by the Prime Minister to ensure APEC's work aligns with business priorities and generates economic benefits.

Strengthening APEC is a key priority for Australia. In 2008–09, Australia was instrumental in efforts to create the position of APEC's first fixed-term Executive Director, which will provide greater continuity and leadership in the APEC Secretariat in the coming year.

Australia is working closely with the current and two incoming APEC hosts – Singapore, Japan, the United States – to ensure that APEC remains ambitious and able to achieve its immediate and longer-term priorities.

### **Free Trade Agreements (FTAs)**

FTAs promote stronger trade and commercial ties between participating countries, and open up opportunities for Australian exporters and investors to expand their business into key markets. They can speed up trade liberalisation by delivering gains faster than through multilateral or regional processes. FTAs that are comprehensive in scope and coverage can complement and provide momentum to Australia's wider multilateral trade objectives.

Australia has bilateral FTAs with New Zealand, the United States of America (USA), Singapore, Thailand and Chile, and a regional FTA with ASEAN and New Zealand.

The Australia New Zealand Closer Economic Relations Trade Agreement (ANZCERTA),

Australia's longest-standing FTA, entered into force in 1983. ANZCERTA is notable for its comprehensiveness, providing for free trade on all goods and almost all services. It has underpinned strong growth in trade between the two countries, with average annual increases of nine per cent during the life of the agreement.

The Australia-United States FTA, which entered into force on 1 January 2005, is a landmark agreement with the world's largest economy. It has led to significantly improved access for Australian industrial and agricultural goods in the USA and has further harmonised our substantial services and investment relationship.

The Singapore-Australia FTA (SAFTA), which entered into force on 28 July 2003, has eliminated and bound all tariffs at zero. Australia's principal market access gains from SAFTA are through liberalisation of the services sector. The Thailand-Australia FTA (TAFTA) has been important in underpinning growth in trade. On entry into force on 1 January 2005 it eliminated tariffs on around half of Thailand's tariff items, accounting for roughly 80 per cent of Thai imports from Australia. A further 41 per cent of Thai tariffs will be phased to zero by 2010.

The Australia-Chile Free Trade Agreement (FTA), which entered into force on 6 March 2009, is Australia's first FTA with a Latin American country and is an important milestone in Australia's enhanced engagement with that region. The agreement provides for immediate reduction of tariffs on 97 per cent of goods currently traded on entry into force. Tariffs on all existing merchandise trade between Australia and Chile will be eliminated by 2015.

The Agreement Establishing the Association of Southeast Asian Nations (ASEAN)–Australia–New Zealand Free Trade Area (AANZFTA) was signed in February 2009 and will enter into force on 1 January 2010. AANZFTA is the largest FTA Australia has concluded. AANZFTA contains regional rules of origin and substantial tariff reduction and elimination commitments, as well as World Trade Organization (WTO)-plus commitments in other areas such as services, which will provide commercially meaningful benefits to Australian business and further strengthen Australia's commercial ties with ASEAN.

Australia is currently negotiating seven FTAs – bilateral FTAs with China, Japan, Korea and Malaysia, and regional/plurilateral FTAs with the Gulf Cooperation Council, the Trans-Pacific Partnership (TPP) and a new Pacific trade and economic agreement (PACER Plus). The website at: <<http://www.dfat.gov.au/trade/ftas.html>> provides more information about Australia's existing FTAs and ongoing FTA negotiations.

## **G20**

G20 Leaders met in November 2008 as a first step in a coordinated international response to the unfolding global economic crisis. A second Summit was held in London in April 2009, and a third in Pittsburgh in September 2009. At the Pittsburgh Summit, Leaders designated the G20 as the pre-eminent global forum for economic cooperation. This designation recognises the success of the G20's coordinated response to the global economic crisis.

The G20 derives its legitimacy from the balance of its membership. It comprises key developed and developing countries from all regions of the world: Argentina, Australia, Brazil, Canada, China, the EU, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, UK and the US. Together, member countries make up about 80 per cent of global trade and more than two-thirds of the world's population.

The G20 Leaders' Summit process emerged out of the Group of 20 Financial Ministers and Central Bank Governors, which was created in 1999 as a response to the financial crises of the late 1990s.

During the three Summits, leaders committed to measures to restore global growth and jobs via economic stimulus packages, to modernise international financial institutions, such as the International Monetary Fund and the World Bank, and to build a stronger, more globally consistent supervisory and regulatory framework. They also agreed to combat protectionism and to make all efforts to conclude the WTO Doha Round in 2010. At the Pittsburgh Summit, Leaders also agreed to establish a new framework for strong, sustainable balanced growth.

The coordinated and substantial policy responses by the G20 over the three Summits has contributed to a rise in global consumer and business confidence and supported the first

tentative signs of global economic recovery. International trade has started to recover and industrial output has risen in nearly all G20 economies.

The decision to make the G20 the pre-eminent forum for global economic cooperation was an historic one for Australia, as it was the first time Australia had secured a permanent seat at the key international forum for global economic decision-making.

Two G20 Leaders Summits will be held in 2010 in Canada and Korea.

More detailed information of the G20's decisions can be found at <[http://www.g20.org/pub\\_communiques.aspx](http://www.g20.org/pub_communiques.aspx)>.

## **Australia's environmental interests**

Australia attaches high priority to the protection, conservation and ecologically sustainable use of the environment. In international environment negotiations Australia pursues outcomes that advance its environmental and trade interests in a mutually reinforcing way.

### **Climate change**

During 2009, Australia continued to play a leading role in promoting global action to address the adverse effects of climate change in a range of international and regional forums, including the UN, G8, G20, APEC and the Commonwealth Heads of Government Meeting (CHOGM). In negotiations under the UN Framework Convention on Climate Change, the Government called on all major emitters to commit to mitigation action in a post-Kyoto global agreement. Australia also continued to pursue action on climate change through bilateral partnerships. As part of Australia's International Forest Carbon Initiative, the Government provided significant assistance to reduce emissions from deforestation and forest degradation in Indonesia and Papua New Guinea.

### **Whales**

Australia is a global leader in whale conservation and is an active member of the International Whaling Commission (IWC). Australia has been firm in advocating reform of the IWC into a



modern, conservation-focused organisation and an end to so-called 'scientific' whaling. At the 61st annual IWC meeting in 2009, Australia's concept of conservation management plans for endangered whale species was adopted. The Australia-led non-lethal Southern Ocean Research Partnership was endorsed by many countries, and Australia obtained commitments for financial and in-kind support from the United States, France and Argentina. A report on whale watching prepared jointly by Australia, Argentina, Brazil, Mexico and South Africa was also widely welcomed, at the IWC meeting, entrenching whale watching as part of the normal business of the Commission. Discussions are ongoing on the future of the IWC. Australia is a member of both the Support Group and the Small Working Group, whose deliberations will assist the IWC Chair in preparing a submission which will ultimately be put before the full IWC membership for consideration at the next annual meeting.

### **Marine biodiversity in areas beyond national jurisdiction**

Australia is a recognised world leader in marine conservation and management, and is concerned about the impact of a range of fishing activities on vulnerable high seas ecosystems. In 2006, Australia successfully led major efforts in the UN General Assembly to achieve international agreement on the regulation of bottom fisheries so as to prevent significant adverse impacts on vulnerable marine ecosystems, including seamounts, hydrothermal vents and cold water corals, in areas beyond national jurisdiction. In May 2009, Australia reported to the United Nations the progress of its implementations on the agreed measures, both as a flag state through domestic legal requirements and in cooperation with other countries through regional fisheries management organisations (Conservation of Antarctic Marine Living Resources, South Indian Ocean Fisheries Agreement and the proposed South Pacific Regional Fisheries Management Organisation). Australia will continue to be actively engaged in further negotiations in the United Nations on efforts to enhance the protection of the world's marine biodiversity in areas beyond national jurisdiction.

### **Tsunami warning mechanisms**

The Indian Ocean tsunami of 26 December 2004 had a devastating impact on a number of

Australia's neighbouring countries. Following the tsunami, Australia has played a leading role in establishing an Indian Ocean tsunami warning system and is continuing to develop a comprehensive national warning system. As part of the Indian Ocean system, Australia's increased monitoring capacity off the west and north coast will provide vital regional coverage and early warning. Australia is also assisting to strengthen the Pacific Tsunami Warning System. The Government has signed Australian Tsunami Warning System Memorandums of Understanding with eight Pacific island countries.

### **Australia's engagement with the United Nations (UN)**

Australia was a founding member of the UN in 1945 and has been an active participant in peacekeeping operations and other UN activities. Australia's core interests in the UN's agenda are international security, the environment, human rights and the Millennium Development Goals. Australia is firmly committed to the multilateral system, as demonstrated by its membership of over 40 UN peacekeeping missions since 1947, commitment to nuclear non-proliferation and disarmament, and Australia's UN Security Council candidacy for the 2013-14 term. Australia also has strong interest in the UN specialised agencies dealing with issues such as agriculture, health, refugees and international nuclear safeguards. Australia is currently the 13th largest contributor to the UN, contributing \$244.05 million to the UN in 2008-09.

Australia engages actively in the UN system and is represented on the governing councils of a number of UN bodies, programs and specialised agencies. These include the International Maritime Organization Council, the Commission on the Limits of the Continental Shelf, the UN Environment Programme Governing Council and the World Heritage Committee. Australia is also represented on the United Nations Commission on International Trade Law, the International Telecommunications Union, the World Meteorological Organization and the International Civil Aviation Organization.

## Australia and the Commonwealth

Australia is an active member of the Commonwealth, a voluntary association of 53 countries, which accounts for two billion people, and comprises mostly developing countries. Australia supports the strengthening of the Commonwealth's focus on its core values of democracy, human rights, the rule of law and good governance, as well as targeted Commonwealth efforts to promote sustainable development and poverty alleviation. A Commonwealth Heads of Government Meeting was held in Trinidad and Tobago in November 2009.

## Australia's human rights policy

Australia has a long tradition of supporting human rights around the world and was closely involved in the development of the international human rights system by helping draft the Universal Declaration of Human Rights in 1948. Australia takes an active and constructive approach to improving human rights standards and systems internationally, including through participation in UN mechanisms for the promotion and protection of human rights, targeted development assistance programs, and support for good governance and the establishment of national human rights institutions. Australia has formal human rights dialogues with China, Vietnam and Laos.

Australia is an active non-member of the United Nations Human Rights Council and encourages the Council to play a positive role in the protection and promotion of human rights internationally. Australia particularly values the Universal Periodic Review mechanism and the work of Special Procedure human rights experts.

## Services to the Australian community

### Consular services

DFAT provides consular services to Australians travelling overseas and their families in Australia through its network of overseas missions and honorary consulates (consisting of 160 points of consular service world-wide), the 24-hour Consular Emergency Centre in Canberra and

consular cooperation arrangements with other countries. Consular services include: assisting Australians who are hospitalised, imprisoned, or require welfare assistance overseas; helping family members when Australian travellers go missing or die overseas; and coordinating responses to overseas emergencies affecting Australian nationals. Of the 6,009,033 Australians who travelled overseas in 2008-09, DFAT provided consular assistance to 35,539 people, including in several major international crises, the largest of which was the Lebanon conflict. DFAT's Smartraveller campaign continued to promote safe overseas travel by Australians. In 2008-09 DFAT issued travel advice updates for 167 destinations on the website at <<http://www.smartraveller.gov.au>>. The site received over 26,597,000 page views in 2008-09.

### Passport services

DFAT provides secure travel documents to eligible Australians in accordance with the *Australian Passports Act 2005* (Cwlth). The department issued 1,524,945 passports in 2008-09 (compared with 1,531,445 in 2007-08) of which 12 per cent were issued under priority processing arrangements. The average turnaround time for passport issue was 5.1 days.

In May 2009, the department launched a new generation of ePassport, the N series, Australia's most secure and visually sophisticated travel document to date. As at mid-2009, 5 million ePassports and a total of almost 10 million valid passports (both electronic and standard machine readable) were in circulation.

DFAT delivers passport services through its network of passport offices in nine cities around Australia, diplomatic and consular missions overseas, a call centre (the Australian Passport Information Service) and around 1700 Australia Post outlets contracted to receive passport applications on the department's behalf.

The department contributes to international and inter-governmental efforts to promote security of identity, travel documents and borders. As a member of the International Civil Aviation Organization, Australia works productively with other countries to develop technical standards for travel documents.

## Public information services

DFAT provides a range of information services on foreign and trade policy to the Australian public and media, including through briefings, public presentations and the production of public affairs material such as brochures, reports and publications. Links to the Department's recent publications can be found on the Department's website. Through public advocacy and cultural diplomacy programs managed within DFAT and by Australia's overseas missions, DFAT promotes an accurate and contemporary image of Australia internationally and a clearer understanding of Australia's foreign and trade policies and strategies. These programs are based on whole-of-government objectives, implemented by posts and supported by biannual inter-agency meetings held in Canberra (with representatives from 18 federal agencies). DFAT manages the contract for the Australia Network international television service with a footprint covering 44 countries throughout the Asia-Pacific region. Detailed information about Australia's foreign and trade policies can be obtained from the department's website at <http://www.dfat.gov.au>.

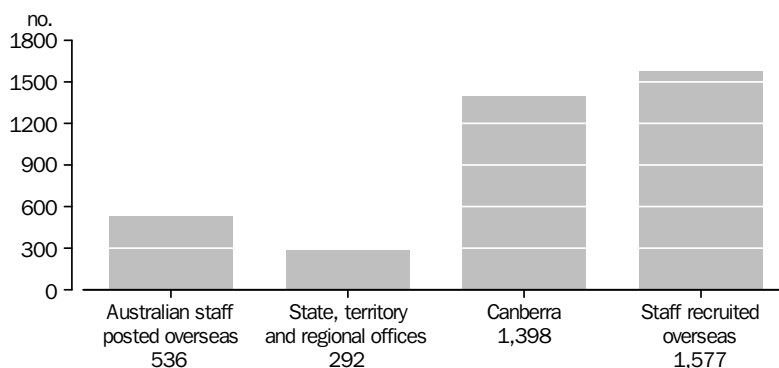
## Network of Australian diplomatic and consular missions overseas

DFAT manages an extensive network of Australian diplomatic and consular missions abroad, supporting Australia's international interests and providing consular and passport services. The Department's central office is in Canberra and it maintains offices in all other state and territory capitals, as well as a passport office in Newcastle and a liaison office on Thursday Island. Information on the location of overseas embassies, high commissions, consulates and multilateral missions managed by DFAT can be found in the on-line version of the Department's annual report at [http://www.dfat.gov.au/dept/annual\\_reports](http://www.dfat.gov.au/dept/annual_reports).

## Location and number of DFAT staff

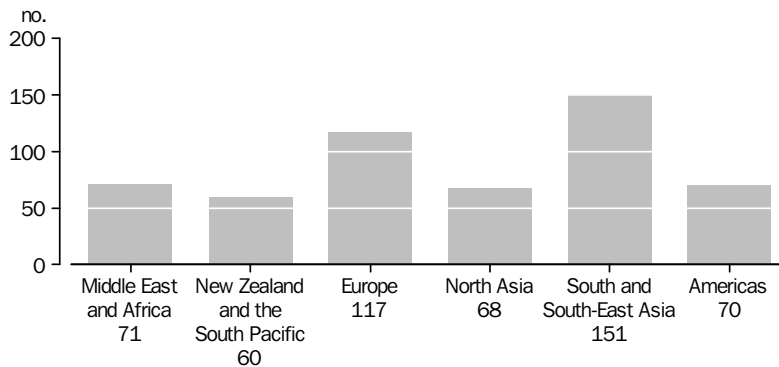
As at 30 June 2009, the Department employed 2,226 Australia-based staff, of whom around 24 per cent were posted overseas; an additional 1,577 locally-engaged staff (LES) were employed by the Department's overseas missions (graphs 5.1 and 5.2).

5.1 LOCATION AND NUMBER OF DFAT STAFF—30 June 2009



Source: Department of Foreign Affairs and Trade.

## 5.2 LOCATION OF AUSTRALIA-BASED DFAT STAFF POSTED OVERSEAS—30 June 2009



Source: Department of Foreign Affairs and Trade.

### Australia's overseas aid program

The objective of Australia's aid program is to assist developing countries to reduce poverty and achieve sustainable development in line with Australia's national interest. Australia's development assistance focus on poverty is guided by the Millennium Development Goals (MDGs), the internationally agreed targets for poverty reduction. The Australian Government has committed to increase Australia's official development assistance (ODA) to Gross National Income (GNI) ratio to 0.5 per cent by 2015-16. In doing so, Australia is committing to an aid program that is stronger and more effective.

The core principles of Australia's aid program are:

- accelerating progress towards the MDGs;
- a recognition that while economic growth is the most powerful long-term solution to poverty, economic growth will not, by itself, deliver fair and stable societies;
- a strong emphasis on the Asia-Pacific, while also increasing our efforts in Africa and South Asia;
- an emphasis on the power of education to promote development; and
- a commitment to continue to improve effectiveness.

These principles will guide the aid program in delivering sustainable development gains.

The Australian Agency for International Development (AusAID) manages Australia's overseas aid program on behalf of the Government. AusAID is an administratively autonomous agency within the Foreign Affairs and Trade portfolio. The aid program's principal focus is on the Asia-Pacific region. The aid program has an international reputation for flexibility, responsiveness and effectiveness.

Australia's aid program was reviewed favourably by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) in 2008. The DAC review noted efforts to promote effectiveness, including through the establishment of the Office of Development Effectiveness (ODE) and the production of the first Annual Review of Development Effectiveness. Australia is one of only two bilateral donors to produce such a review on a regular basis.

### Responding to the global recession

Dramatic changes have been made to the international landscape over the past year due to the impact of the global recession. Declines in foreign direct investment, export revenue, remittances, tourism and other adverse impacts of the recession will reduce economic growth and, in turn, may unravel progress towards the MDGs. Based on economic growth projections made in late March 2009, it is estimated that up to 90 million extra people world-wide (62 million in Asia) will live in extreme income poverty in 2009 as a result of the economic slowdown. This represents not just a slowing but a reversal in the

global extreme poverty reduction trend since 2005, with the global number of extreme income poor rising to over 1.2 billion people in 2009.

The objective of Australia's aid response to the global recession is to maintain progress towards the MDGs and to support early, sustainable recovery. Priority has been given to generating employment and restoring growth; supporting delivery of basic services, such as health care and education, to the poor; and helping the vulnerable.

### **Generating employment and restoring growth**

Increased efforts to generate employment will be an essential component of an effective response to the global recession in almost all developing countries. Keeping people in work, even on minimal incomes, helps to maintain essential household purchases and promotes social stability, especially in countries where systems of social protection are weak.

The employment generation impacts of existing aid programs in infrastructure and enterprise development will be boosted significantly by 2009–10 budget initiatives in rural development and food security and economic infrastructure. Emphasis will be given to labour-intensive public works programs, such as road maintenance, especially in regional areas, where alternative employment opportunities are scarce. Programs to increase employment opportunities will be targeted to groups most affected by the recession, such as women in export-oriented industries or rural youth. Australian support for technical and vocational training will also continue to be expanded.

Sustaining investment in infrastructure, including maintenance, is also critical to avoid exacerbating future infrastructure bottlenecks which will lengthen the impact of the recession and slow economic recovery.

Established and successful programs of support in economic governance in the Asia-Pacific region have positioned Australia well to assist developing country partners to implement structural changes that will better prepare them for economic recovery and increase their overall resilience to future economic shocks. Potential areas for increased support may include efforts to promote private sector activity, including privatisation of

poorly performing state-owned enterprises, increased tendering of inefficient government services such as road maintenance and wider efforts to improve the business-enabling environment.

### **Supporting service delivery**

As government revenues decline it will be important to focus limited resources on essential health, education, and economic infrastructure services. Australia will assist partner countries to assess fiscal gaps, re-prioritise expenditures and improve the quality of budgeting and expenditure management. Budget initiatives in 2009–10 to increase the use of performance-linked aid and improve transparency and accountability in government will support partner country efforts.

There is likely to be greater demand for basic public health services at the community and facility level with less ability to pay out-of-pocket expenses. Australia will work with partner countries to ensure aid spending is effectively targeted towards minimising recession impacts on the delivery of essential services. Appropriate actions to support maintenance of basic health and education services may include increased school-based grants, fee relief, and funding to maintain essential pharmaceutical supplies to health centres.

### **Helping the vulnerable**

The impact of the global recession is being felt differently in different countries. The most vulnerable groups include:

- those just above the poverty line who have limited access to alternate sources of income in an economic downturn;
- children of poorer households who may suffer malnutrition, be subject to neglect or violence or who may need to leave school to seek work;
- those engaged in trade-exposed industries;
- poor pregnant women, newborn babies and infants who may have less access to appropriate medication and nutrition; and
- marginalised groups, such as ethnic minorities, the rural poor and people with disability.

Australia will work with partner governments, civil society groups and other development partners to improve the quality and timeliness of vulnerability assessments particularly in the Asia-Pacific region. To support those most at risk

of falling into extreme poverty and avoid the risks of life-long 'poverty traps' social protection programs may include:

- conditional cash transfer programs, such as payments made to parents for children attending school;
- nutrition and feeding programs in schools or for pregnant and lactating women and infants; and
- micro-insurance programs to support informal sector livelihoods.

## **Economic growth**

The global economic slowdown demonstrates clearly the link between broad-based economic growth and sustained improvements in the lives of the poor. In 2009–10, a range of new initiatives will support accelerated economic growth, through investments in rural development, microfinance and infrastructure development.

## **Rural development**

Global population growth of one per cent per year, increased consumption and the diversion of food crops for biofuel production and for intensive feeding of livestock, have all increased the total global demand for food, resulting in food shortages in particular countries. According to the United Nations, there are currently close to one billion malnourished people globally. Changes in climatic conditions, soil degradation, scarcity of arable land, a decline in the standard of rural infrastructure and use of outdated agricultural practices have affected the global community's capacity to respond.

Over 90 per cent of the poor in East Asia and the Pacific live in rural areas with most dependent on agriculture and fisheries for their livelihoods. A decrease over the past several decades in investments in agriculture and agricultural research and development has compounded the problems in developing countries of food insecurity and persistent rural poverty.

Australia's response to this problem includes both short and medium-term investments to support increased agricultural productivity, better functioning of rural markets, trade reform, improved fisheries management and removal of barriers to rural private sector growth. Direct spending on rural development is estimated to be

\$230 million in 2009–10, or approximately six per cent of total ODA. This includes the first year of the new initiative Food Security through Rural Development (\$464 million over four years) introduced in the 2009–10 Budget.

Increased funding will build on successful current large-scale program support (such as agricultural livelihoods training in 45 provinces of Vietnam) as well as smaller-scale projects (such as assisting local farmers in the Solomon Islands to identify better performing varieties of subsistence root crops).

## **Microfinance and financial services**

In 2009-10, the Australian aid program will facilitate economic growth through expanded support for microfinance activities in both urban and rural areas. This will enable poor people, who commonly lack collateral or are considered too costly to serve, to access affordable small-scale financial services such as deposits, loans, remittance transfer systems and insurance. New assistance will support activities in the Pacific, Papua New Guinea and East Timor, and Africa and West Asia, including Afghanistan and Iraq. In this work Australia will draw on partnerships with non-government organisations (NGOs), regional network organisations and the private sector. Financial support for the Consultative Group to Assist the Poor, a World Bank policy and research body which disseminates best practice advice on microfinance will continue.

## **Infrastructure**

Poor infrastructure is a major constraint to economic development and achievement of the MDGs. Conversely, infrastructure investment has a demonstrated positive impact on economic growth and poverty reduction. Reliable transport infrastructure improves access to services and markets, encourages entrepreneurial activity and promotes economic integration. Improved water and sanitation services help reduce water-borne and vector-borne diseases. Information and communication technology promotes broad-based growth through greater integration of markets and economies. Reliable and affordable energy supplies promote agricultural and private sector development and improve living standards in poor households.

Two-thirds of people globally who are without reliable access to clean water live in the

Asia-Pacific region. Of the region's 3.8 billion people, over half do not have access to sanitation, and an estimated one billion people still lack electricity.

Australia's direct spending on infrastructure and water and sanitation will increase to over \$560 million in 2009–10, or approximately 15 per cent of total ODA, up from \$350 million in 2007–08. This includes the first year of the new Economic Infrastructure Initiative (\$454 million over four years) introduced in the 2009–10 Budget. Increased funding will help partner governments maintain and enhance investments in essential infrastructure, while generating jobs and improving service delivery, in response to the unfolding global recession. Major components of infrastructure assistance in 2009–10 will comprise support for transport (45 per cent of total infrastructure expenditure), water and sanitation (30 per cent) and energy sector development (12 per cent).

Australia's support for transport infrastructure focuses on improving access to markets and essential services. Major programs are underway in Indonesia, the Philippines, the Greater Mekong sub-region, East Timor, Papua New Guinea and the Pacific.

## Education

The number of children enrolled in primary school worldwide has risen from 647 million to 688 million over the six year period from 2000. However, there are still 75 million children of primary school age who are not enrolled. Over 27 million of these children live in Asia and the Pacific. Children who miss out on a full basic education are overwhelmingly poor, female, living in remote locations, from ethnic minorities or with disability.

The Australian Government recognises the power of education as an investment that helps individuals achieve their potential and societies to be stronger and more productive. Investments in education will increase to over \$690 million in 2009–10, or approximately 18 per cent of total ODA. Approximately one third of education sector expenditure relates to strengthening higher education and the provision of development scholarships. The majority of education expenditure relates to basic education and education system strengthening. Support for

technical and vocational education currently comprises about nine per cent of total education expenditure.

In 2009–10 Australia will strengthen national education systems in Indonesia, Papua New Guinea, the Philippines, East Timor, Bangladesh, Fiji, Vanuatu, Samoa, Kiribati and Laos. Programs are tailored to partner country circumstances and priorities. They include provision of quality teaching and learning materials; teacher training; the use of school-based grants; and support for education sector governance and the construction and refurbishment of schools and classrooms; improved information systems, education planning, budgeting and management.

Australia's education assistance will also reach the disadvantaged and marginalised, including through the provision of more equitable access to quality education for girls and boys with disabilities, and those in disadvantaged Muslim and Indigenous Peoples' communities in the Philippines. In collaboration with UNICEF, Australia will support improved education for disadvantaged communities in Papua, in Indonesia. In the Pacific, Australia will continue to help develop livelihood skills through existing and new programs in Tonga, Kiribati, Samoa and Fiji. The Australia-Pacific Technical College, which has campuses in Fiji, Samoa, Papua New Guinea and Vanuatu, is on track to deliver 3,000 graduates (trained to Australian standards) by June 2011.

## Scholarships

Through the Australian Development Scholarships program, Australia provides around 1,000 new scholarships annually in tertiary and higher education. This is projected to increase to an estimated 1,500 by 2011. In addition, approximately 2,500 Australian Leadership Awards will be offered in the period to 2011, involving scholarships and fellowship placements with Australian host organisations. As part of Australia's overall increase in aid to Africa, Australia will help build Africa's human resource capacity through a significantly expanded scholarships program which will include technical and vocational training.

In the Pacific, Australia is supporting enhancement of regional education institutions. As part of Australia's investment in improving Pacific public sector capacity over the next four

years, Australia will provide 20,000 training opportunities for Pacific public servants to improve core writing, accounting and administrative skills; 2,000 leadership development opportunities for strongly performing senior and middle level public servants, in areas such as policy development and people management; and more than 100 Australian Government scholarships or fellowships offered each year for promising public servants working on priority issues.

## Health

In the Asia Pacific region, approximately a quarter of a million women die annually of preventable and treatable complications in pregnancy and childbirth; close to four million children die before their fifth birthday; and five million people are living with HIV. In the Pacific, non-communicable diseases such as diabetes and heart disease are now a major cause of adult mortality. In Solomon Islands and Vanuatu, malaria incidence is among the highest in the world outside Africa.

Australian support for health and HIV activities will increase to over \$595 million in 2009–10, or approximately 16 per cent of total ODA. Major categories of health sector expenditure are prevention, treatment and care with respect to control of sexually transmitted infections (STI) and HIV, support for basic health care, and strengthening and improvement of health systems. Large health sector support programs are underway in Papua New Guinea, Indonesia, and the Solomon Islands. New health programs have been established in Pakistan, Bangladesh, Vietnam, Cambodia and East Timor. In Africa, Australia will broaden its assistance for maternal and child health. At the global level Australia is contributing to innovative funding approaches, including to the Global Alliance for Vaccines and Immunisation (GAVI) which is providing greater access to the benefits of immunisation.

Improving maternal and child health will remain a priority, including through increasing access to family planning services, increased numbers of skilled birth attendants and the use of health performance incentives to ensure services reach vulnerable groups. Australia will also provide additional funding of up to \$15 million over four years through United Nations agencies, bilateral programs and Australian NGOs for family

planning and reproductive health activities to help reduce maternal deaths.

## HIV

Globally, there are 33.2 million people living with HIV. In the Asia-Pacific region, there are nearly half a million new infections and 300,000 deaths each year. HIV is having an increasingly human and economic impact on our nearest neighbour, Papua New Guinea where there are approximately 60,000 people living with the disease and an estimated 3,730 children were orphaned by HIV in 2007 alone. It is estimated that, without additional action, infection rates will increase from just over two per cent of the population now to five per cent within the next four years. Rates of infection in the neighbouring provinces of Papua and West Papua in Indonesia are approximately 2.4 per cent and also growing rapidly.

In 2009–10 expenditure on programs to address HIV will increase to an estimated \$160 million. This includes a further \$46.5 million contribution to the Global Fund to Fight AIDS, Tuberculosis and Malaria. This contribution supports performance-based grants for country-driven programs, to reduce the burden and impact of HIV, tuberculosis and malaria. The principal geographic focus for Australia's HIV support will be the Asia-Pacific region, particularly in Papua New Guinea, East and South Asia and Pacific Island countries.

Australia's HIV-related international development assistance will support partner countries to:

- intensify HIV prevention;
- optimise the role of health services within HIV responses;
- review legal and policy frameworks to enable effective responses to HIV;
- build the evidence base for an effective HIV response; and
- demonstrate and foster leadership on HIV.

## Governance: Enabling sustainable development

Building capacity for effective economic and public financial management is critical for development, attracting investment and ensuring that public resources are used sustainably and



targeted to areas of need. Governance includes more than the institutions of state. Effective governance occurs when government, the private sector, civil society organisations and citizens work together to identify needs, find solutions and deliver services. Effective governance includes a commitment to combat corruption and improve transparency and accountability in government. Corruption is a primary impediment to sustainable growth and improved service delivery, leading to under-investment in public goods and entrenched inequality.

Australia is committed to work at all levels of society in partner countries to support improvements in government capability, responsiveness to citizen needs and accountability. Spending on governance constitutes the largest proportion of the aid program, reflecting the importance of effective governance to improved service delivery, economic growth and social stability. In 2009–10 governance-related ODA will total approximately \$820 million or 22 per cent of total ODA.

Economic governance and public sector reform are heavily interdependent. Two priorities for the Australian aid program from 2009–10 will be improving public financial management and working with sub-national levels of government in partner countries. This work will respond to challenges emerging from the global recession in developing countries such as shrinking revenues and increased demand for government services. Assistance will include increasing the capacity of government systems, through tailored training programs, placement of Australian and other experts with partner country governments, and encouraging the adoption of best-practice systems of performance improvement such as Public Expenditure and Financial Analysis.

In many countries in which the Australian aid program works, basic services such as education and health are delivered by sub-national levels of government. From 2009–10 Australia will provide increased support to strengthen government systems and processes for the delivery of basic services at national and local levels through improved regulatory, legislative and policy frameworks. This includes the first year of the new Improving Responsiveness and Accountability in Government Initiative (\$136 million over four years) introduced in the 2009–10 Budget.

Australia will continue to support engagement between communities and government, to improve the ability of citizens to participate in making decisions that impact upon their lives. Programs to support the role and build the capacity of civil society organisations to monitor, and in some instances deliver, services will be developed and strengthened. In 2009–10, work will continue to strengthen Pacific media to provide citizens with greater access to information and increase government accountability.

### **Performance-linked aid**

Performance-linked aid is the provision of additional assistance to partner governments and agencies to recognise progress in achieving identified policy or administrative reforms or improvements in specific development outcomes. Early evidence from the use of performance-linked aid indicates that it has helped partner governments to set and implement effective policy and can be a powerful instrument for reform - provided there is local ownership and clarity around performance measures. Australia will invest \$336.1 million over four years to enable the inclusion of significant performance-linked aid elements within the new Pacific Partnerships for Development and the expansion of existing performance-linked aid arrangements in Asia.

### **Equitable development**

The Australian Government is committed to equitable development, with the gains and benefits of development assistance available to all.

### **Gender equality**

Addressing gender inequality and supporting women's full participation in economic, social and political life are priorities for Australia's aid program. Gender inequalities are most visible in women's access to education, health services, economic opportunities and political participation. Women are also far more likely than men to be the victims of violence. Despite recent progress in South Asia, only 85 girls for every 100 boys are enrolled in secondary school, and women and girls remain at a distinct disadvantage in attending school and acquiring literacy skills. In East Timor, maternal mortality is estimated at 660

per 100,000 live births, one of the highest rates in the world. The Pacific has the lowest rate of female membership of parliaments in the world (2.5 per cent) and is the only region in which women's formal political participation has stagnated.

Gender disparities have clear social and economic costs. In the Asia-Pacific region, it is estimated that up to US\$47 billion per year is lost due to restrictions on women's access to employment opportunities and up to US\$30 billion due to gender gaps in education. Violence and the fear of violence severely limits the contribution of women to development and causes lower worker productivity and income, escalating costs in healthcare, social services and policing, disability and lower rates of accumulation of human and social capital.

Australia is working to narrow the gender gap by targeting direct assistance to reduce violence against women and improve economic opportunities for women, as well as enhancing their participation in decision-making. Australia will increase its support for the United Nations Development Fund for Women (UNIFEM) (\$16.1 million over the next three years) in support of UNIFEM's work in over 100 countries to reduce women's poverty and exclusion, end violence against women, reverse the spread of HIV among women and girls and support women's leadership in governance and post-conflict reconstruction.

In partnership with UNIFEM Pacific, Australia will provide \$6.2 million over five years to train women at a local level for leadership and governance roles in the Pacific. Research to be undertaken on the barriers and successful pathways to women's leadership in the Pacific region will help shape future assistance.

### **Helping people with a disability**

People with disability are among the poorest and most vulnerable in developing countries. They are more likely to be excluded from education, health services and employment, than others in their communities. Eighty per cent of the 650 million people living with disability world-wide are in developing countries. Disability can lead to significant economic impacts on families and communities, with an estimated 25 per cent of households affected.

It is believed that, in Asia, at least half the causes of disability can be prevented. One-third of people with disability are children, two-thirds of whom have preventable impairments. The costs globally of blindness and low vision in 2000 were estimated to be US\$42 billion. Without a decrease in the prevalence of blindness and low vision, it is projected that total annual costs would rise to US\$110 billion by 2020. Road traffic accidents cost developing countries up to US\$100 billion each year, a figure equivalent to almost twice as much as total global ODA.

The specific needs and priorities of people with disability are considered across all phases of Australia's development assistance. Efforts will focus initially on reducing preventable impairments in two areas; avoidable blindness and road safety. An Avoidable Blindness Fund has been established to strengthen eye health and vision services in Cambodia, Papua New Guinea, Solomon Islands and Vanuatu. Australia is also working with members of Vision 2020 Australia to support Vietnam's Prevention of Blindness strategy and with the New Zealand Agency for International Development (NZAID) to expand the number of eye health workers in the Pacific, Papua New Guinea and East Timor. Increased support will also reduce impairments caused by traffic accidents, building on Australia's existing support for the World Bank's Global Road Safety Facility.

### **Environmental sustainability**

Addressing environmental and climate change challenges is central to poverty reduction. Expenditure on environment and climate change programs in 2009–10 is estimated to be over \$170 million, approximately five per cent of total Australian ODA. Australia's development assistance to the environment sector to date has focused primarily on: supporting adaptation to climate change; greenhouse gas mitigation through reduced deforestation and forest degradation; and multilateral environment funds.

Supporting developing countries to implement lower carbon growth strategies is an increasing focus for Australia's development assistance. Australia has made a pledge of \$100 million over three years to the World Bank-administered Clean Technology Fund, which finances large-scale and innovative approaches to the demonstration and

deployment of low carbon technologies in high-emitting developing countries.

Australia will continue to expand efforts to address the impacts of climate change with funding of \$150 million over three years from 2008–09 to address high priority adaptation needs in vulnerable countries in Asia and the Pacific. Support to partner countries in 2009–10 will include: scientific research to better understand the impacts of climate change on the natural and socio-economic systems of Pacific Island countries; vulnerability assessments to help Pacific Island countries formulate appropriate adaptation strategies and plans; and specific assistance to help country partners adapt to the immediate impacts of climate change.

The International Forest Carbon Initiative (\$200 million over five years from 2007–08) is supporting cost effective abatement of global greenhouse gas emissions by improving the management of tropical forests in developing countries. Under the Kalimantan Forests and Climate Partnership for example, the first large-scale Reducing Emissions from Deforestation and Degradation (REDD) demonstration activity of its kind is being planned in Indonesia. In 2009–10, Australia will work with Indonesia to develop a second REDD demonstration activity and a national carbon accounting system.

## **Human security and stability**

Conflict, insecurity and humanitarian crises undermine development progress and future growth prospects through the destruction of local communities, livelihoods, institutions and infrastructure and places pressure on fragile government systems. Emerging global issues, including the closely-linked concerns of climate change, food and resource insecurity, and protracted displacement are potential causes of increasing poverty and human insecurity.

Australia provides assistance to over 30 humanitarian and protracted emergency situations worldwide each year. The increasing frequency and ferocity of natural disasters and greater public awareness of their impact is leading to greater emphasis on disaster preparedness and risk reduction in an effort to mitigate the worst humanitarian effects of such disasters.

Australia will continue to contribute to international responses to humanitarian crises, taking a leadership role in response operations in the Asia-Pacific region where this is appropriate. Australia will also take an active leadership role in policy dialogue and advocacy in international fora such as in the role of chair of the United Nations Office for Coordination of Humanitarian Affairs (UNOCHA) Donor Support Group. Increased coherence in addressing issues of human security and stability will be achieved through a new Crisis Prevention, Stabilisation and Response Group in AusAID.

In 2009–10 humanitarian, emergency and refugee-related expenditure is estimated to be \$350 million or approximately nine per cent of total Australian ODA. Australia will continue to strive to increase the effectiveness of humanitarian action through improved donor coordination, strengthened accountability and support for global response mechanisms, in particular the World Food Programme, the United Nations High Commissioner for Refugees (UNHCR), the International Red Cross Movement, and the United Nations Central Emergency Response Fund (UNCERF).

Australia's emergency response is supported by effective disaster risk reduction, aimed at strengthening partner countries' capacities to respond to disasters. In 2009–10 Australia will work with the United Nations International Strategy for Disaster Reduction, the World Bank's Global Facility for Disaster Reduction and Recovery, partner governments, and NGOs to strengthen prevention, mitigation and preparedness efforts.

Following from the Australian Prime Minister's and the Indonesian President's announcement in November 2008 at the Asia-Pacific Economic Cooperation (APEC) Leaders' Meeting, work will continue in 2009–10 to implement the Australia-Indonesia Facility for Disaster Reduction (\$67 million over five years). The facility is delivering; training and outreach; risk and vulnerability modeling; and research and analysis in disaster risk reduction, to benefit Indonesia, other countries in the region and regional organisations such as the Association of South East Asian Nations (ASEAN).

## Country and regional programs

Details of assistance for individual major partner countries/regions in 2009–10 are summarised below, along with levels of total Australian ODA from all agencies and programs to each country/region.

### Papua New Guinea and Pacific (\$1138.4m)

- *Papua New Guinea* (\$414.3m) – provide better access to markets and services, promote faster progress towards universal basic education, improve health outcomes, strengthen the public service, and improve governance and nation building.
- *Solomon Islands* (\$246.2m) – improve service delivery, economic livelihoods, economic infrastructure and address economic challenges. Through the Regional Assistance Mission to the Solomon Islands (RAMSI) contribute to safer and more secure Solomon Islands, contribute to better functioning government and improve the standard of living for Solomon Islanders.
- *Vanuatu* (\$56.3m) – increasing access to and quality of education, improve access to basic health services for rural communities; assist with government and law and justice reforms.
- *Fiji* (\$35.4m) – provide social protection and financial inclusion measures, support health and education systems, and partner with civil society and regional organisations to improve governance.
- *Tonga* (\$21.3m) – improving public financial and economic management, improve access to primary health care, improve technical and vocational skills and develop infrastructure through the Pacific Regional Infrastructure Facility.
- *Samoa* (\$32.4m) – promote private sector growth and employment, improve health, education and governance, and provide climate change assistance.
- *Kiribati* (\$17.7m) – improving basic education, develop workforce skills and improve growth and economic management.
- *Other Pacific (including Tuvalu, Nauru, Micronesia, Cook Islands, Niue, Tokelau and regional)* (\$314.8m) – through regional programs supporting stronger broad-based growth; more effective, accountable and democratic government;

improved law and justice and security; and enhanced service delivery. Through other bilateral programs including supporting budget reforms, targeted scholarships and selected trust funds.

### Indonesia and East Asia (\$1072.4m)

- *Indonesia* (\$452.5m) – promote sustainable growth and economic management, improve service delivery, improve democracy, justice and good governance and improve peace and safety.
- *Philippines* (\$123.0m) – support will focus on improved basic education, promoting national stability and human security and supporting economic growth.
- *Vietnam* (\$105.9m) – assistance will focus on strengthening the governance of the institutions required for a competitive market economy, improving infrastructure, improving water and sanitation, providing climate change assistance and building government and private sector capacity.
- *Cambodia* (\$61.4m) – assistance will focus on alleviating rural poverty, improving health outcomes, supporting sustainable economic and natural resource management and strengthening the law and justice sector.
- *Laos* (\$36.0m) – increase access to quality basic education, support trade and investment reforms, integrate livelihood development through programs addressing food-security and income generation, and build government and private sector capacity.
- *East Timor* (\$117.0m) – expand support to improve health outcomes, enhance support for rural employment, improve public financial management and improve security.
- *Burma* (\$29.1m) – through UN and international agencies support the basic needs of Burma's poor and vulnerable populations and continue to assist communities affected by Cyclone Nargis.
- *China* (\$37.0m) – policy engagement on governance, environment and health.
- *Mongolia* (\$6.4m) – provide scholarships to assist the Mongolian Government achieve its Human Resource Development goals.
- *East Asia Regional* (\$104.1m) – supporting regional economic integration and strengthening regional institutions.

## **Africa (\$163.9m)**

- *Africa* (\$163.9m) – support Africa’s achievement of the MDG’s through assistance to selected countries in sectors such as food security, maternal and child health, and water and sanitation. Contribute to humanitarian assistance in close coordination with other donors, and support the reintegration of Zimbabwe into the international community.

## **South Asia, and Other (\$155.3m)**

- *Bangladesh* (\$61.2m) – improving livelihoods of the rural poor, increased support for education, increased support for health services, and improving water and sanitation services.
- *Sri Lanka* (\$35.6m) – humanitarian support, community rehabilitation, livelihood development and peace building, along with education, health and natural resource management.
- *India* (\$13.7m) – support agriculture research and build linkages focused on sustainable development between Australian and Indian institutions, continue support for reducing the impact of HIV and AIDS.
- *Nepal* (\$15.8m) – improve health service delivery by funding UNICEF programs, strengthen governance and support community participation, support education and provide support to the UN Development Program to support micro-enterprise and employment generation.
- *Maldives* (\$3.7m) – provide support through scholarships, post-tsunami reconstruction and governance activities.
- *Bhutan* (\$4.8m) – provide support through scholarships, small-scale governance and education activities.
- *South Asia Regional* (\$20.5m) – continued support to regional development issues including climate change, water and sanitation, HIV and AIDS, health, education, and regional integration. Assistance will be delivered through regional partners including the Asian Development Bank, World Bank, Joint UN Programme on HIV/AIDS, and UNICEF.

## **Central Asia and Middle East (\$224.5)**

- *Pakistan* (\$58.8m) – support maternal and child health, support basic education, continue humanitarian relief and reconstruction, support agriculture and rural development and provide tertiary scholarships.
- *Afghanistan* (\$88.7m) – improve agriculture and rural development, support basic service delivery, strengthen local government and promote community capacity, assist vulnerable populations through multilateral agencies and support reconstruction activities.
- *Iraq* (\$44.7m) – strengthen agricultural productivity and food security through programs under the Australia-Iraq Agricultural Partnership, support improved governance and public sector capacity, and support vulnerable populations by re-establishing essential services.
- *Palestinian Territories* (\$32.3m) – support the implementation of the Palestinian Reform and Development Plan, protect vulnerable groups particularly woman and children through improving access to basic services in partnership with Australian NGOs and improve health and education services for Palestinian refugees.

## **Global programs**

### **Humanitarian, emergency and refugee programs**

The objectives of the Australian humanitarian program are to save lives, alleviate suffering, and maintain human dignity during and in the aftermath of man-made crises and natural disasters. The program also aims to prevent and strengthen preparedness for the occurrence of such situations. Humanitarian, emergency and refugee programs in 2009–10 amount to \$299.8m. This includes \$16.0m to support the International Committee of the Red Cross in playing its key role responding to conflict and meeting the needs of conflict and crisis-affected populations.

**Multilateral engagement**

Australia will continue to work closely with international financial institutions to increase their focus on the Asia-Pacific region, as well as supporting global development efforts. Estimated 2009–10 funding for multilateral institutions through replenishments is \$259.8 million.

Estimated 2009–10 funding for UN, Commonwealth and other international organisations amounts to \$205.9 million, continuing support to core UN agencies and major international organisations with proven track records to deliver priority development outcomes in the Asia-Pacific region.

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# 6

## DEFENCE

*This chapter was contributed by the Australian Government Department of Defence (November 2009).*

The Australian Defence Organisation is made up of over 90,000 personnel across the Australian Defence Force permanent forces, Reserve forces, and civilian employees. The operational tempo of the Australian Defence Force (ADF) has been high over the past year, with a peak contribution of over 3,500 personnel serving on 18 deployments around the world. The skill, courage, and integrity of our service men and women has been exemplary, evoking the finest traditions of the ADF. The awarding of the Victoria Cross to Trooper Mark Donaldson in January 2009, the first Australian in almost 40 years to receive the award, was a fitting recognition for his outstanding bravery and courage.

This chapter provides an overview of the roles and activities of Defence. In particular, it focuses on the strategic environment, current operations and capability. The chapter also shows trends in Defence spending, and looks at the composition of the workforce.

The information contained in this chapter was the most recent available at the time of preparation. Where available, further and more up-to-date information can be found on the Defence website, <<http://www.defence.gov.au>> or from the references listed in the bibliography at the end of this chapter.



## The White Paper

On 2 May 2009, the Prime Minister, the Hon Kevin Rudd MP, launched in Sydney the *Defence White Paper: Defending Australia in the Asia Pacific Century: Force 2030*. This is the first White Paper in over eight years, with previous papers delivered in 1976, 1987, 1994 and 2000.

The White Paper affirms the Government's commitment to the defence of Australia, the security and stability of the regional security environment, and a rules-based global security order. It confirms the centrality of the alliance relationship with the United States and reaffirms Australia's commitment to the United Nations system.

The White Paper notes the increasing uncertainty of the strategic environment and better positions Defence to respond to conflicts, contingencies and humanitarian and disaster relief activities in that future environment. It states that Australia's military strategy will be predominantly a maritime one where we will seek to control the air and sea approaches to Australia, if necessary by defeating hostile forces in their bases or staging areas, or attacking them in transit.

The key long-term force structure choices made by the Government are to double the number of submarines by building 12 new boats in South Australia, build a new class of frigate that will be optimised to detect and destroy submarines, provide more than 1,100 new combat vehicles to the Army as well as increasing its general firepower, mobility and survivability, and equip the Air Force with around 100 F-35 Joint Strike Fighters.

## The Strategic Reform Program (SRP)

The past year has also signalled the start of significant, deep and holistic reform in every part of Defence.

The SRP is the most far reaching reform ever undertaken by Defence. It involves improvements to many areas of Defence, from strategy planning and development to procurement and services reform. The SRP is a long-term program, a decade long campaign, that will change Defence culture and deliver sustainable improvements in the way Defence conducts business.

As a result of the SRP Defence will deliver gross savings from efficiencies and cost reductions over the coming decade of around \$20 billion. This money will be reinvested to deliver Force 2030. After conducting operations, there is no higher priority in Defence than the SRP.

## Major operations 2008–09

In 2008–09 Defence continued to perform very well in a wide range of operations. This year, Defence was engaged in operations in East Timor, Solomon Islands, Papua New Guinea and the Northern Indian Ocean, and maritime security operations in the South China Sea in support of regional security. In the Middle East, Defence contributed to coalition efforts in order to deny Afghanistan as a safe haven for terrorist groups and also supported the Multinational Force effort to develop a stable and secure environment in Iraq. In Africa, the Middle East, Iraq, Afghanistan, and East Timor, Defence also supported United Nations Missions and our forces operated in the Gulf region and the Horn of Africa to counter the threat of piracy. Here at home, Defence assisted the civil authorities' response to the devastating Victorian bushfires and floods in Queensland and New South Wales. Defence also provided personnel to support the Government's intervention to assist Indigenous communities. Finally, Defence played a central role in protecting Australia's borders and offshore maritime assets.

The Government has approved the deployment of approximately 3,300 ADF personnel to operations overseas and within Australia to protect Australia and its national interests. Additionally, approximately 500 ADF members are actively protecting Australia's borders and offshore maritime interests.

### Middle East

#### *Operation Catalyst*

Operation Catalyst was the Australian Government's contribution to the stabilisation and rehabilitation of Iraq. The operation was completed, and all 35 ADF personnel embedded in Coalition Headquarters were withdrawn from Iraq by 30 July 2009.

### *Operation Kruger*

Commencing in 2009, Operation Kruger supports the Australian Government's relations with Iraq through the delivery of tailored security support to the diplomatic mission. It involves approximately 80 ADF personnel who serve in a security detachment. It is intended that this function will gradually transition to security services provided by the Department of Foreign Affairs and Trade.

### *Operation Riverbank*

Operation Riverbank commenced in 2008 and is Australia's contribution to the United Nations Assistance Mission for Iraq. Two ADF personnel serve as military advisors in the United Nations Headquarters.

### *Operation Palate II*

Operation Palate II commenced in 2005 and is Australia's contribution to the Military Liaison Officer position in the United Nations Assistance Mission in Afghanistan.

### *Operation Slipper*

Operation Slipper is Australia's contribution to the war against terrorism and the multinational maritime interception force in the Persian Gulf. The deployed forces consist of a Mentoring and Reconstruction Task Force, Chinook helicopters and the Special Operations Task Group, who have provided ongoing reconstruction and rehabilitation work in Oruzgan Province in southern Afghanistan. This valuable work includes skills development and engineering projects and helps both to strengthen local capacity and to increase Afghan security. The ADF's ongoing commitment to Oruzgan is aimed at helping Afghanistan's government create a secure and stable environment.

### *Operation Mazurka*

Operation Mazurka began in September 1982 and is Australia's contribution to the Multinational Force and Observers (MFO) in the Sinai. The MFO is a non-United Nations organisation established in 1981 to oversee the Camp David Accords of 1978 and the Egypt/Israel Peace Treaty of 1979. The ADF contributes 25 personnel to the Multinational Force Headquarters.

### *Operation Paladin*

Operation Paladin commenced in June 1956 and is Australia's ongoing contribution to the United Nations Truce Supervision Organisation in the Middle East. The ADF contributes 11 unarmed United Nations Military Observers who supervise, observe and report on the various cease-fire arrangements, truces and peace treaties that have been negotiated between Israel and neighbouring Arab nations since 1948.

## **Pacific**

### *Operation Anode*

Operation Anode is the ADF contribution to the Department of Foreign Affairs and Trade-led Regional Assistance Mission to Solomon Islands (RAMSI). The military contingent of RAMSI is supporting the Participating Police Force effort in maintaining law and order. The ADF leads the coalition military contribution to RAMSI and currently provides 143 predominantly ADF Reserve personnel to the operation.

## **Timor-Leste**

### *Operation Astute*

Operation Astute is the name for the ADF stabilisation operations in support of the Government of Timor-Leste and the United Nations Mission in East Timor. The ADF contributes approximately 660 personnel as part of the international Stabilisation Force (ISF). Apart from commanding the ISF, the ADF provides a Battle Group and an Aviation Group.

### *Operation Tower*

Operation Tower is Australia's contribution to the United Nations Integrated Mission in Timor-Leste, and consists of one staff officer and three military liaison officers.

## **Sudan**

### *Operation Azure*

Operation Azure is Australia's contribution to the United Nations peacekeeping operation in Sudan. On 24 March 2005 the UN Security Council authorised the establishment of the United Nations Mission in Sudan under resolution 1590. Currently, 17 ADF personnel act as United Nations Headquarters staff, national support element staff or United Nations military observers.

### *Operation Hedgerow*

Commencing in 2008, Operation Hedgerow is Australia's contribution to the joint African Union/United Nations hybrid Mission in Darfur, Sudan. The ADF has eight personnel committed to this operation who serve as United Nations Headquarters staff or specialist officers. Currently there are no ADF members deployed to this mission.

## **Border protection**

### *Operation Resolute*

Operation Resolute commenced on 17 July 2006 as a consolidation of the majority of ADF border security operations. It is commanded by Border Protection Command (BPC), an interagency organisation led by Customs and Defence which includes Australian Fisheries Management Authority and Australian Quarantine Inspection Service personnel. The BPC is responsible for coordinating and controlling Australia's Offshore Maritime Security and brings together Defence, Customs and Australian Maritime Safety Authority assets in a whole-of-government surveillance and response effort.

## **Peacetime national tasks**

### *Operation Padang Assist*

Operation Padang Assist (October–November 2009) was the ADF's month long mission to help those affected by a major earthquake that struck the Indonesian city of Padang.

### *PNG Assist II*

In December 2008 *PNG Assist II* was conducted to support whole-of-government assistance to the Government of Papua New Guinea by providing relief materials and air transport to northern PNG, New Ireland and Manus following recent flooding and tidal surges. It involved the deployment of a C-130 Hercules transport aircraft.

### *Operation Gateway*

Commencing in 1981, Operation Gateway conducts Northern Indian Ocean and South China Sea maritime surveillance patrols. Australia contributes one P-3 Orion maritime patrol aircraft for four patrols per year.

### *Operation Outreach*

Operation Outreach was conducted from June 2007 – November 2008 to provide support to the whole-of-government support to Indigenous communities in the Northern Territory. It involved provision of general support to the Northern Territory intervention, in particular support to community surveys, child health checks and installation of police workplace and custodial facilities. Support was largely provided by ADF Reserve Force units and personnel.

### *Operation VIC Fire Assist*

During February and March 2009 the ADF provided support to the Victorian Government recovery efforts following the February 2009 Bushfires. 800 predominantly Reserve ADF personnel were deployed, including a Joint Task Force Headquarters, an Engineering Support Group and an AP-3C Orion Maritime Patrol Aircraft fire spotting surveillance flights.

### *Army Aboriginal Community Assistance Program*

The Aboriginal Community Assistance Program is a cooperative between the Department of Families, Housing, Community Services and Indigenous Affairs and the Army to improve environmental health conditions within remote Aboriginal communities. The program seeks to maximise benefits to Indigenous communities by focusing on projects that allow the Army to make best use of its construction and capability, by capitalising on the Army's ability to holistically deliver a range of services to remote Indigenous communities that would not normally be available in a single project.

## **Resources**

As outlined in the 2009–10 Portfolio Budget Statements, the Government provided Defence with additional funding of \$146.1 billion to fully fund the White Paper over 21 years to 2029–30. This funding amounts to \$104.4 billion over the Budget year and Forward Estimates and \$308.2 billion over the decade to 2018–19.

Defence's funding will be based on the following funding principles:

- 3 per cent average real growth to 2017–18

- 2.2 per cent average real growth from 2018-19 to 2029-30
- 2.5 per cent fixed price indexation from 2009-10 to 2029-30, with the 2.5 per cent to be calculated from 2009-10 but applied from 2013-14
- agreement that Defence will reinvest all savings from the Strategic Reform Program and other initiatives into higher priority Defence capabilities
- agreement that Defence will make savings of \$2 billion, which will be returned to Defence beyond 2015-16 in line with the revised funding requirements
- an extension of the efficiency dividend of one per cent of the administrative activities for the life of the White Paper.

This new Defence funding package provides Defence with greater funding stability and certainty while requiring Defence to drive efficiencies and improve productivity. The 2.2 per cent real growth funding is consistent with the long-term Non-Farm GDP Deflator. An efficiency and savings regime to free up resources for reallocation to higher, critical priorities will be combined with a reprogramming of funds to future years, ensuring Defence can fund capabilities outlined in the White Paper as they are required.

In addition to the new funding package, there are several measures and adjustments which affect Defence funding. These are:

- supplementation of \$1.7 billion in the budget year and \$2.1 billion over four years for Operations
- in response to the Mortimer Review, the transfer of the Defence Materiel Organisation service fee on an ongoing basis through a direct appropriation, which equates to \$3.2 billion over four years to 2012-13 and \$8.7 billion over the decade to 2018-19
- supplementation of \$1.7 million in 2009-10 for the Defence Science and Technology Organisation for its role in the National Crisis Coordination Centre
- a hand back to Government of \$2 million over four years and \$4.9 million over ten years as part of the rationalisation of medical costs in administering military superannuation schemes.

## Capabilities

The changing strategic environment highlights the need for the ADF to be a flexible and adaptable defence force, which is ready to be deployed at short notice and can be sustained on operations for as long as required. Capability is the power to achieve a desired effect in a nominated environment in a specified period of time, and to sustain it for a designated period.

Defence maintains a force structure with the following elements:

### Navy

- a surface combatant force of four Adelaide-class guided missile frigates and eight Anzac class frigates, home ported at Fleet Base East in Sydney, New South Wales, and Fleet Base West, Western Australia
- a naval aviation force comprising 16 Seahawk helicopters, six Sea King helicopters and 13 Squirrel helicopters and three Augusta A109E Power Helicopters, which operate from Adelaide-class and Anzac-class frigates and from HMAS Albatross, Nowra, New South Wales
- a surface patrol capability comprising 14 Armidale-class patrol boats, manned by 21 crews and home ported at Darwin Naval Base in the Northern Territory, and HMAS Cairns, Cairns, Queensland
- six Collins-class submarines, which are home ported at Fleet Base East and Fleet Base West
- an afloat support capability consisting of an oil tanker and a replenishment ship home ported respectively at Fleet Base West and Fleet Base East
- a mine warfare force comprising six Huon-class coastal mine hunters and a clearance diving team, operating from HMAS Waterhen, Sydney, New South Wales and an additional clearance diving team based at Fleet Base West
- an amphibious lift force comprising two amphibious landing ships, one heavy landing ship and six heavy landing craft home ported at Fleet Base East, Darwin Naval Base and HMAS Cairns

- a hydrographic force consisting of two Leeuwin-class hydrographic ships and their embarked survey motor boats, four Paluma-class survey motor launches, a laser airborne depth sounder aircraft and a deployable geospatial support team (formerly the Deployable Survey Unit), home ported at HMAS Cairns.

## Army

- a special forces capability comprising a Special Air Service regiment, a Regular Army commando battalion, an Army Reserve commando regiment, and an Incident Response Regiment, operating from Barracks in Sydney and Perth
- a medium combined arms operations capability based on 1st Brigade, consisting of a tank regiment, a cavalry regiment, two mechanised infantry battalion, a medium artillery regiment, a combat engineer regiment, a signals regiment and a combat service support battalion, operating mainly from Robertson Barracks, Darwin
- a light combined arms operations capability based on 3rd Brigade, consisting of an infantry mobility vehicle squadron, three light infantry battalions, a field artillery regiment, a combat engineer regiment, a signals regiment and a combat service support battalion, operating mainly from Lavarack Barracks, Townsville
- a motorised combined arms capability, based on 7th Brigade, consisting of a cavalry regiment, two motorised infantry battalion, a field artillery regiment, a combat engineer regiment, a signals squadron and a combat service support battalion, operating mainly from Gallipoli Barracks, Enoggera, Queensland
- a regional surveillance capability based on three regional force surveillance units
- an aviation capability containing Chinook helicopters, Black Hawk helicopters, Kiowa helicopters, Tiger Armed Reconnaissance helicopters, and Multi-role helicopters. These capabilities operate from Army Aviation Centre, Oakey, Queensland, Robertson Barracks, Darwin, Northern Territory, Lavarack Barracks, Townsville, Queensland, Holsworthy Barracks, Sydney, New South Wales and RAAF Bases Townsville and Darwin
- a ground-based air defence capability which maintains a ground-based air defence system consisting of RBS-70 missile systems home based at Woodside Barracks, Adelaide

- a combat support force, consisting of a surveillance and target acquisition regiment, an engineer support regiment headquarters, two Regular Army engineer construction squadrons, a construction engineer works section, a topographical survey squadron, a signals regiment, an electronic warfare regiment, an intelligence battalion, a military police battalion, a ground liaison group and a combat training centre, operating from Barracks around Australia
- a logistic support capability based on the 17th Brigade consisting of a signals regiment, three force support battalions, a personnel support battalion, three health support battalions and a psychology unit operating from Barracks around Australia
- a protective operations capability drawn from the Army Reserve, with six brigades each comprising two or three infantry battalions; an artillery regiment, a light cavalry unit and combat support and logistic support units, home based around Australia.

## Air Force

- an air combat force of 16 F-111 and 69 F/A-18 Hornet aircraft, crews, weapon systems and support infrastructure home based at RAAF Bases Williamtown, Amberley and Tindal. Thirty-three Hawk Lead-In fighter aircraft and four PC-9 Forward Air Control training aircraft also contribute to this force home based at RAAF Bases Williamtown and Pearce
- a combat support force comprising two expeditionary combat support wings and a health services wing
- a surveillance and response force, consisting of air traffic control radar, tactical air defence radars, and the Jindalee Operational Radar Network (a wide-area surveillance system monitoring Australia's northern approaches). Nineteen P-3 Orion aircraft, crews and weapons systems also operate from RAAF Base Edinburgh
- an airlift force consisting of 24 C-130 Hercules, eight B300 King Air 350 light utility aircraft and four C-17 Globemaster III heavy airlift aircraft, home based at RAAF Bases Richmond, Townsville and Amberley
- A VIP transport squadron of five aircraft (two Boeing 737 BBJ and three CL604 Challenger aircraft) home based at Fairbairn, Australian Capital Territory

- 57 Pilatus PC-9 training aircraft home based at RAAF Bases East Sale and Pearce
- a further 8 B300 King Air 350 Multi-role trainer aircraft based at RAAF Base East Sale
- Five KC-30A tanker aircraft will be acquired from 2010 for air-to-air refuelling roles and will be based at RAAF Base Amberley
- an Aerospace Operational Support force comprising aviation medicine support and training, electronic warfare support, intelligence support, and aviation support services based at RAAF Base Edinburgh. An aerospace test and evaluation unit is also included that operates two F/A-18 Hornet aircraft and two PC-9 aircraft at RAAF Base Edinburgh.
- three contingency bases at Learmonth (Exmouth), Curtin (Derby), and Scherger (Weipa)
- three air weapons ranges at Delamere (Northern Territory), Evans Head (New South Wales) and Woomera (South Australia).

## Defence Material Organisation (DMO)

The DMO equips and sustains the ADF through the acquisition and sustainment of capital equipment. The operational success of the ADF depends on the DMO providing equipment on time, on budget, and to the required levels of capability, quality and safety. In July 2005, the DMO became a prescribed agency under the *Financial Management and Accountability Act 1997(Cwlth)*. The DMO is a professional service delivery organisation, principally driven by the defence policies and objectives set by the Australian Government and the requirements of the ADF. It aims to be a business-like, accountable and outcome-driven organisation with a strong and close relationship with the Government, its Defence customers and industry.

The DMO is currently managing over 210 major acquisition projects (those with a contract value of more than \$20 million) and more than 150 minor projects. It also provides sustainment management services for over 100 'fleets' of military equipment. To meet these demands, the DMO has many of its own staff, together with contracted industry suppliers, across Australia and overseas including the United States, United Kingdom, France, Spain and New Zealand.

The DMO and Australian defence industry have a significant and ongoing role to play in delivering new equipment on time, on budget and to specification underlined by capability effect, quality and safety. In 2009-10, the DMO is budgeted to spend in excess of \$11.85 billion, of which an estimated 57 per cent is expected to be spent in Australia.

The demands of the Defence Capability Plan require an increase in excess of 30 per cent in the new project work rate of the DMO, and industry, over the next five years. The DMO will manage approximately \$100 billion worth of work on acquisition and sustainment projects over the next decade, with about 65 – 70 per cent to be spent in Australia.

For more information about the DMO, visit: <http://www.defence.gov.au/dmo/>.

## People

As at June 2009, Defence was one of the largest employers in Australia, with a diverse workforce of over 70, 000 permanent employees, plus part-time staff and Reservists.

- The total ADF workforce was 81,106, including 17,918 Navy Permanent, and Reserve members, 45,166 Army Permanent, and Reserve members and 18,022 Air Force Permanent, and Reserve members. In addition, 22,166 former permanent and Active Reserve ADF members remain in the Standby Reserve, a significant latent capability potentially available to support operations.
- The total APS workforce was 21, 006, including all APS staff recorded as active employees and included full-time, part-time, ongoing and non-ongoing, and paid and unpaid employees in both Defence and the Defence Materiel Organisation.
- 2,630 Reservists were also Defence APS employees.
- Contractors and Australian industry also contribute to the Defence workforce by providing support in a variety of areas and are an important element of the total Defence effort

Detailed information on the Defence workforce can be found at <http://www.defence.gov.au/annualreports/>.

## **Recruitment and retention**

The ADF has had a Recruitment and Retention Program in place since 2007, with \$3.1 billion allocated over a ten year period to a range of initiatives. The program included retention bonuses focussed on reducing separation rates amongst critical categories and ranks in the short term, while longer-term structural change, remuneration reform and other benefits were put in place to encourage members to stay longer. At the same time a number of improvements have been made to Defence's recruitment practices. Some related developments are listed below.

In 2008–09 growth in the permanent ADF workforce was broadly on track. As outlined in the White Paper, the ADF is required to grow to a full time strength of approximately 57,800 over the next decade. In the 12 months to June 2009, the permanent ADF strength increased by 1,925, bringing the total ADF permanent workforce to 55,068. This is an increase of 3.6 per cent on the 2007–08 total of 53,143.

## **Multicultural Recruitment and Retention Strategy**

Defence has continued to encourage multicultural recruitment and retention in the ADF. Research into impediments to the enlistment of individuals with culturally diverse backgrounds has led to the development of a recruiting marketing campaign, currently progressing through Government clearance processes, an alumni visit program for personnel from multicultural backgrounds to promote the ADF, mentoring, coaching, partnering research with tertiary institutions, as well as community engagement with Ethnic Councils.

## **Indigenous Participation**

Indigenous recruitment and retention is also a priority for Defence. The Directorate of Indigenous Affairs was launched in July 2008 to provide a single point of contact for Defence Indigenous issues. The Directorate oversees the implementation of initiatives and strategies arising from the Defence Reconciliation Action Plan, which is available at <http://www.defence.gov.au/fr/>

## **The ADF Indigenous Employment Strategy**

The ADF Indigenous Employment Strategy encompasses initiatives to attract and recruit more Indigenous people from remote, regional and urban communities throughout Australia. Work is in progress under its three themes of changing perceptions; specialised pathways; and ongoing support to Indigenous ADF members. A cultural integration package is being developed to assist Defence workplaces in embracing cultural diversity on a daily basis. Indigenous pre-recruitment courses have been trialled in Townsville, Newcastle and Western Sydney, resulting in a promising level of enlistments.

The APS Indigenous Employment Strategy is under review to comprehensively address the attraction and retention of Indigenous Australians through increasing opportunities to participate more fully in the Defence APS workforce. This includes participation by Defence in the National Indigenous Cadetship Project, Indigenous Graduate Recruitment, Indigenous entry level recruitment and the Indigenous Contract Management Diploma Course. Staff also attended several Indigenous Employment and Carers Expos in Queensland. In addition, the Defence Science Indigenous Scholarship was awarded for the first time in March 2009.

## **Army Aboriginal Community Assistance Program**

The Aboriginal Community Assistance Program is a cooperative program between the Department of Families, Housing, Community Services and Indigenous Affairs and the Army to improve environmental health conditions within remote Aboriginal communities.

The program seeks to maximise benefits to Indigenous communities by focusing on projects that allow the Army to make best use of its construction and capability, by capitalising on the Army's ability to holistically deliver a range of services to remote Indigenous communities that would not normally be available in a single project.

## **Indigenous Liaison Officers**

Indigenous Liaison Officers develop and maintain links with local Indigenous communities. They are responsible for consulting with Indigenous

groups on issues pertaining to the use and upkeep of Defence training areas on heritage land as part of Defence Heritage Management Plans and Indigenous Land Use Agreements.

## **The Defence estate**

The Defence estate is the largest real estate portfolio in Australia. It covers approximately 374 major properties (including 60 major bases), 25,000 assets, and millions of hectares of land embracing five world heritage areas. Defence provides facilities and infrastructure in support of the activities of personnel across all states and territories in Australia.

## **Climate Change**

Defence is serious about our environmental responsibilities to ensure a sustainable future. As part of the 'Combat Climate Change' initiative, Defence achieved a reduction of more than five per cent in electricity usage across the portfolio in the past year. In addition, 234 infrastructure and capability related projects were subject to environmental impact assessments, and Defence continues to implement and develop the Environmental Management System across the three million hectares of Defence estate.

## **Defence Housing Australia (DHA)**

DHA provides high quality housing and relocation services to members of the ADF to meet the operational requirements of Defence.

DHA was established as a statutory authority under the Defence Housing Australia Act 1987 (Cwlth). DHA manages around 17,000 residences in all states and territories of Australia,

representing around \$7 billion worth of housing stock. Over 60 per cent of these residences are owned by private investors and leased back to DHA through the Sale and Leaseback Program. DHA manages approximately 24,500 relocations for ADF members and their families each year. This service includes arrangement of removal requirements; payment of entitlements; allocation of homes and a smooth move-out process. Staff support ADF members from 22 Housing Management Centres and other offices located across Australia.

DHA has an innovative sale and leaseback program, which ensures efficient use of DHA's capital, allowing DHA to develop quality residential properties in key locations across the country, sell them to investors and then lease them back.

On 3 February 2009 the Government announced details of funding to be provided to DHA as part of its Nation Building – Economic Stimulus Plan. The focus of the funding is on jobs creation and securing long term economic growth. As part of the stimulus plan, \$251.58 million will be provided to DHA to construct an additional 802 new residential houses throughout Australia over the new two years.

These 802 additional houses will supply much needed accommodation to serving ADF members and their families and will also materially increase the supply of residential housing at a time of historically low national rental vacancy. This will assist with improving rental accommodation affordability for the community.

For more information about the DHA, refer to its website <<http://www.dha.gov.au>>.



## **Bibliography**

### **References**

Department of Defence publications can be found at <<http://defence.gov.au/publications.cfm>>, including:

*Defence White Paper 2009: Defending Australia in the Asia Pacific Century: Force 2030*

*Defence Annual Report 2008–09*

*Defence Portfolio Budget Statements 2009–10*

*Defence Fast Facts 2009*

### **Websites**

Department of Defence, last viewed November 2009, <<http://www.defence.gov.au>>

Defence Materiel Organisation, last viewed November 2009, <<http://www.defence.gov.au/dmo>>

Defence Housing Australia, last viewed November 2009, <<http://www.dha.gov.au>>

Defence Annual Reports, last viewed November 2009, <<http://www.defence.gov.au/annualreports/>>

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Infrastructure Division, last viewed November 2009, <<http://intranet.defence.gov.au/dsg/sites/ID/>>

# 7

## POPULATION

Population statistics measure the size, growth, composition and geographic distribution of the population, as well as the components that shape population change – births, deaths and migration. Population statistics underpin discussion on a wide range of topical issues, including dynamics in family structures, fertility, ageing and migration. Statistics on population trends assist governments in developing social and economic policies in areas such as health, education, housing, the labour market, and the environment.

There are important legislative requirements for the *Australian Bureau of Statistics (ABS)* to produce population estimates. The legislation which determines the distribution of state, territory and local government grants uses the ABS population estimates as one of the bases for calculation. Population estimates are also used to determine the number of seats each state and territory is entitled to in the House of Representatives.

The Census of Population and Housing, which has been held every five years since 1961, is the primary source of information on Australia's population. The most recent Census was conducted in August 2006.

This chapter contains the article *Characteristics of the Population*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Population size and growth

Australia's estimated resident population (ERP) at 30 June 2008 was 21.4 million, an increase of 1.7% (or 359,300 people) from the previous year (table 7.1).

ERP figures for Australia and its states and territories are calculated using a base figure obtained from the most recent Census of Population and Housing. To obtain ERP figures from the Census results, the raw Census population count is adjusted for visitors from overseas and interstate on Census night, Australian residents temporarily overseas on Census night and an estimate of both the number of people missed and those counted more than once. ERP figures for dates between Censuses are estimated by adding births and net overseas migration to the Census-based figure, and

subtracting deaths. For state and territory figures, interstate migration estimates are also applied. Table 7.1 illustrates the components used to estimate ERP and population change.

Over the past decade, Australia's ERP has grown by 14.5% or 2.7 million people. The growth of Australia's population has two components: natural increase (the excess of births over deaths) and net overseas migration (i.e., net gain or loss of population through immigration to Australia and emigration from Australia). For state and territory estimates, a third component, net interstate migration, is also included. Since Federation in 1901, Australia's population has increased by 17.6 million people. Graph 7.2 shows the growth in Australia's population since Federation.

### 7.1 COMPONENTS OF POPULATION CHANGE AND ESTIMATED RESIDENT POPULATION(a)(b)

	ERP at start of period	Births	Deaths	Natural increase	Net overseas migration	ERP at end of period	Increase	Increase
	'000	'000	'000	'000	'000	'000	'000	%
2002-03	19 651.4	246.7	132.2	114.4	116.5	19 895.4	244.0	1.24
2003-04	19 895.4	249.1	133.2	115.9	100.0	20 127.4	231.9	1.17
2004-05	20 127.4	255.9	131.4	124.6	123.8	20 394.8	267.4	1.33
2005-06	20 394.8	263.5	134.0	129.5	146.8	20 697.9	303.1	1.49
2006-07	20 697.9	277.7	136.0	141.7	232.8	21 072.5	374.6	1.81
2007-08(c)	21 072.5	287.7	142.0	145.6	213.7	21 431.8	359.3	1.71

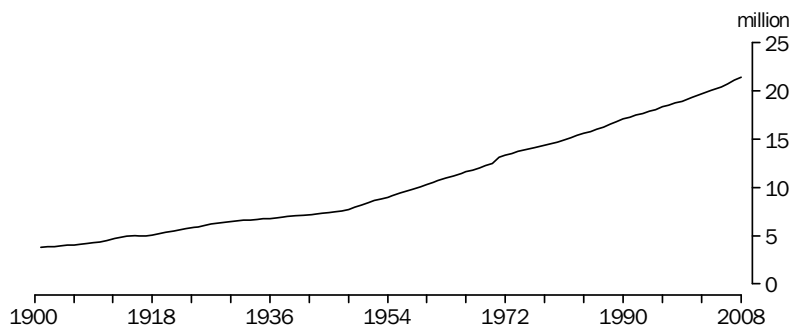
(a) For further information on the components of population change please refer to the Explanatory Notes in Australian Demographic Statistics (3101.0).

(b) Differences between total increase and the sum of the components of population change prior to September quarter 2006 are due to intercensal discrepancy.

(c) Preliminary estimate.

Source: Australian Demographic Statistics (3101.0).

### 7.2 POPULATION OF AUSTRALIA



Source: Australian Historical Population Statistics (3105.0.65.001); Australian Demographic Statistics (3101.0).

### 7.3 POPULATION, By state and territory(a)

30 June	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust. (b)
	'000	'000	'000	'000	'000	'000	'000	'000	'000
1958	3 692	2 718	1 439	897	700	333	22	41	9 842
1968	4 359	3 324	1 729	1 122	915	380	68	112	12 009
1978	5 054	3 864	2 172	1 296	1 228	418	110	218	14 359
1988	5 707	4 263	2 740	1 405	1 535	451	159	272	16 532
1998	6 339	4 638	3 448	1 490	1 823	472	190	310	18 711
2005	6 756	5 049	3 995	1 553	2 017	486	206	330	20 395
2006	6 816	5 127	4 091	1 568	2 059	490	211	334	20 698
2007	6 905	5 221	4 196	1 586	2 113	493	215	341	21 072
2008	6 984	5 314	4 294	1 603	2 171	498	220	346	21 432

(a) Prior to 1971, estimates of the population were based on the number of people actually present in Australia. From 1971 onwards the concept of estimated resident population (ERP) was introduced. See Explanatory Notes of Australian Demographic Statistics (3101.0) for more information.

(b) Includes Other Territories from 1998 onwards.

Source: Australian Historical Population Statistics (3105.0.65.001); Australian Demographic Statistics (3101.0).

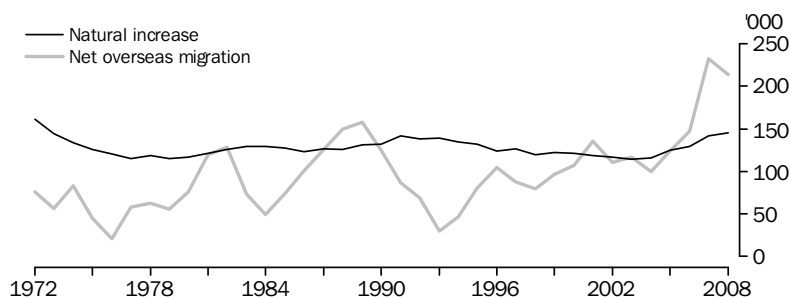
Over the last 50 years, population growth has occurred unevenly across the states and territories (table 7.3). Consequently, the proportion of Australia's population resident in each state and territory has changed over time. From 1958 to 2008, the proportion of the Australian population living in the following states decreased: New South Wales (from 37.5% to 32.5%), Victoria (from 27.6% to 24.8%), South Australia (9.1% to 7.5%) and Tasmania (3.4% to 2.3%). The proportion of Australia's population living in all other states and territories increased over the same period, with Queensland increasing from 14.6% to 20.0%, Western Australia from 7.1% to 10.1%, the Australian Capital Territory from 0.4% to 1.6% and the Northern Territory from 0.2% to 1.0%. Western Australia overtook South Australia to become the fourth most populous state in 1982.

### Components of population growth

The Australian population has more than doubled from 9.8 million in 1958 to 21.4 million in 2008. Since the start of the ERP measure in 1971, natural increase has been the main component of population growth in Australia. However, in the last three years net overseas migration has been the larger contributor to population growth. Net overseas migration, is more volatile than natural increase, fluctuating under the influence of government policy as well as political, economic and social conditions in Australia and the rest of the world.

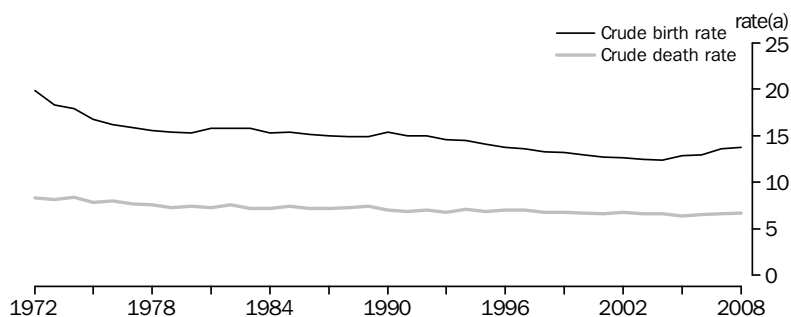
Annual growth at 30 June due to natural increase and net overseas migration from 1972 to 2008 is shown in graph 7.4.

7.4 COMPONENTS OF POPULATION GROWTH, At 30 June



Source: Australian Historical Population Statistics (3105.0.65.001); Australian Demographic Statistics (3101.0).

## 7.5 CRUDE BIRTH AND DEATH RATES



(a) Per 1,000 population.

Source: *Australian Historical Population Statistics (3105.0.65.001)*; *Australian Demographic Statistics (3101.0)*.

In 1972, the excess of births over deaths resulted in a natural increase of 161,800 persons.

Declining fertility led to a fall in natural increase at around 110,000 to 130,000 before peaking at 141,600 in 1991. Natural increase again dropped to a low of 114,420 persons in 2003. In recent years due to an increase in births, there has been a rise in natural increase to 145,600 persons in 2008. Since 2006, net overseas migration has contributed more people to the population than natural increase, adding 213,700 people in 2008.

In 2008 the crude death rate was 6.7 deaths per 1,000 population, falling from 8.3 in 1972. The crude birth rate declined from 19.9 births per 1,000 population in 1972 to 13.8 in 2008. The lowest crude birth rate during this period, 12.4 births per 1,000 population, was recorded in 2004. Crude birth and death rates from 1972 to 2008 are shown in graph 7.5.

### Population age and sex structure

Over the last 50 years the absolute number of people increased in all age groups. However, the proportion of the population in older age groups increased while the proportion in younger age groups declined. Graph 7.6 shows the proportions of the population by age group and sex in 1958 and 2008, illustrating the ageing of Australia's population. Australia's population is ageing because of sustained below replacement level fertility, resulting in proportionally fewer children in the population, and increased life expectancy, resulting in proportionally more older people in the population.

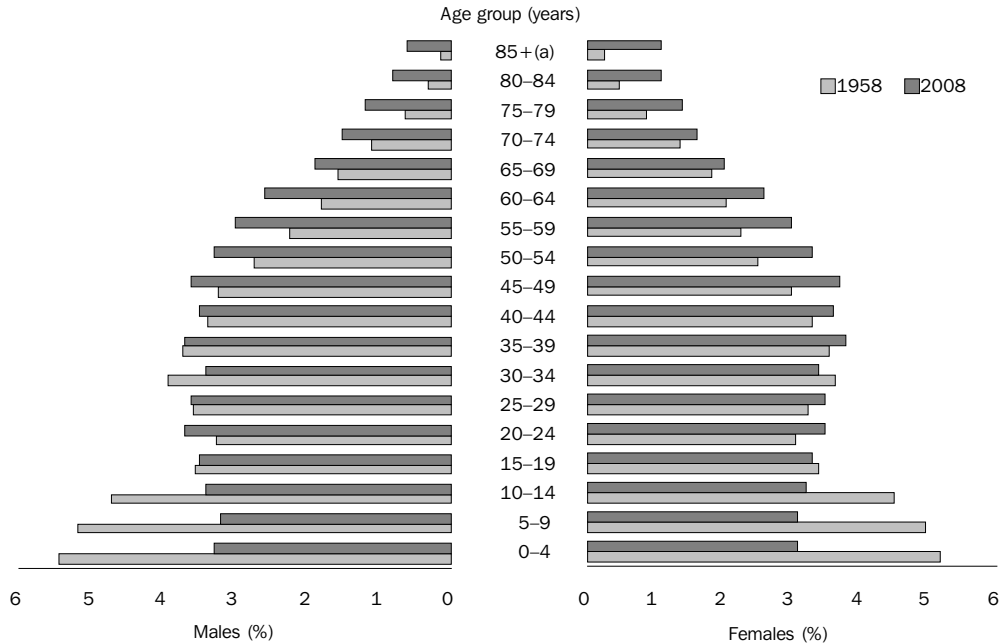
In 1958 there were 110,800 more males than females in Australia's population, while in 2008 there were 109,900 more females than males. Since 1979 Australia has been home to more females than males. At 30 June 2008, the sex ratio of Australia's population was 99.0 males per 100 females.

In 1958 people aged 0–14 years represented 30.0% of Australia's population, while those aged 15–64 years represented 61.5%, those aged 65 years and over represented 8.5% and those aged 85 years and over represented 0.4%. Although Australia's population continued to grow since 1958, the proportion of children aged 0–14 years decreased to 19.3% by 2008. In contrast, the proportion of people aged 15–64 years increased to 67.5% and the proportion of the population aged 65 years or more increased to 13.2%. The proportion of those aged 85 years and over increased four-fold to 1.7% (graph 7.7).

The change in the age structure of Australia's population over time is illustrated by the change in the median age (the age at which half the population is older and half is younger). In 2008 the median age of the Australian population was 36.9 years, an increase of 5.3 years over the median age of 31.6 years in 1988. Graph 7.8 shows the median ages of the population of the states and territories in 1988 and 2008.

In 2008 the population of Tasmania had the highest median age of all states and territories (39.4 years), closely followed by South Australia (39.0 years). The Northern Territory (31.1 years) had the lowest median age in 2008.

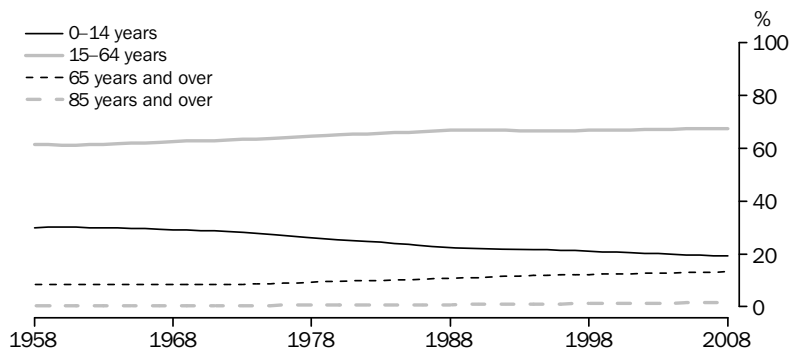
## 7.6 AGE DISTRIBUTION OF POPULATION



(a) The 85+ age group includes all ages 85 years and over and is not directly comparable with the other five-year age groups.

Source: Australian Historical Population Statistics (3105.0.65.001); Population by Age and Sex, Australian States and Territories (3201.0).

## 7.7 PROPORTION OF POPULATION, By age group

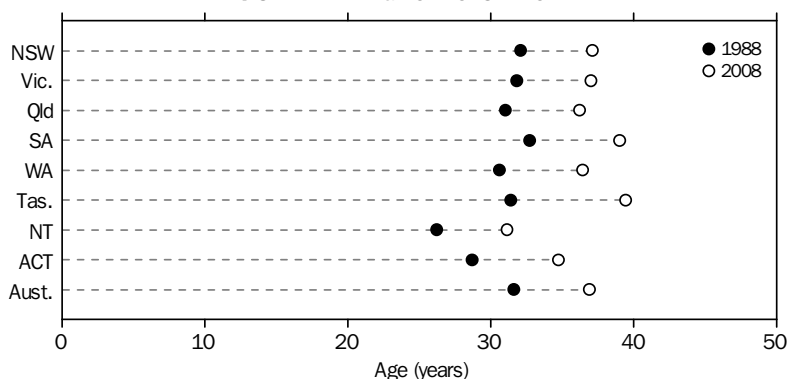


Source: Australian Historical Population Statistics (3105.0.65.001); Population by Age and Sex, Australian States and Territories (3201.0).

Tasmania experienced the largest increase in median age over the 20 years to 2008, increasing by 8.0 years from 31.4 years in 1988 to 39.4 years in 2008. The next largest increase was South Australia, increasing by 6.3 years, from 32.7 years in 1988 to 39.0 years in 2008.

In 2008 there were just over 2.8 million people aged 65 years or more in Australia, an increase of 67,700 people (2.5%) over 2007. All states and territories experienced growth in this age group, with the Northern Territory experiencing the greatest increase (6.6%) (table 7.9).

### 7.8 MEDIAN AGE OF POPULATION



Source: *Population by Age and Sex, Australian States and Territories (3201.0)*.

### 7.9 OLDER AUSTRALIANS(a), 30 June 2008

	AGED 65 YEARS AND OVER		AGED 85 YEARS AND OVER	
	Proportion of Population in 2008	% Population growth from 2007 to 2008	Proportion of Population in 2008	% Population growth from 2007 to 2008
New South Wales	13.8	2.2	1.8	6.4
Victoria	13.5	2.2	1.8	5.7
Queensland	12.3	3.0	1.5	5.6
South Australia	15.3	1.9	2.1	6.1
Western Australia	11.9	3.2	1.4	6.1
Tasmania	15.0	2.3	1.9	4.8
Northern Territory	5.1	6.6	0.3	9.8
Australian Capital Territory	10.0	3.8	1.2	9.6
Australia(b)	13.2	2.5	1.7	6.0

(a) Persons aged 65 years and over

(b) Includes Other Territories. Other Territories comprise Jervis Bay Territory, Christmas Island and the Cocos (Keeling) Islands.

Source: Australian Demographic Statistics (3101.0).

The number of people aged 85 years and over in Australia has increased by 6.0% from 2007 to 2008, now equalling just over 362,000. Again, growth in this age group occurred in all states and territories, with the Northern Territory experiencing the greatest increase of 9.8% closely followed by the Australian Capital Territory (9.6%).

### Population projections

The ABS has published projections of the population of Australia to the year 2101 and of the states, territories, capital cities and balances of state to the year 2051, based on assumptions about future levels of fertility, mortality and

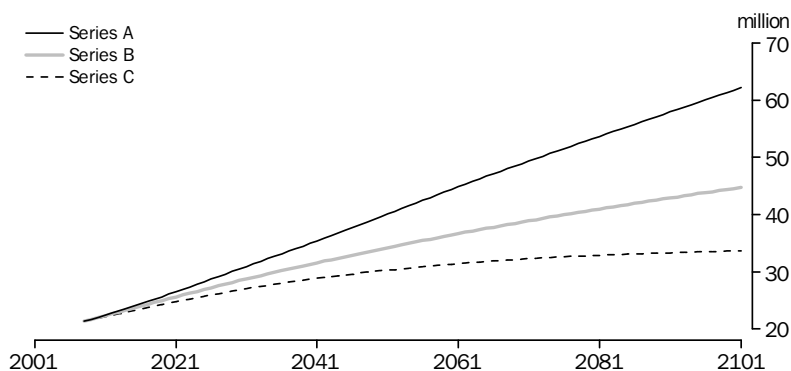
overseas and interstate migration. Three main projections (Series A, B and C) have been published using different combinations of assumptions. The current set of population projections are based on preliminary population estimates for 30 June 2007.

Assumptions used for the three series of projections were:

Series A

- a total fertility rate of 2.0 babies per woman from 2021 onwards,

### 7.10 PROJECTED POPULATION, At 30 June



Source: *Population Projections, Australia, 2006 to 2101 (3222.0)*.

- life expectancy at birth increasing to 93.9 years for males and 96.1 years for females by 2056 and remaining constant thereafter,
- net overseas migration of 220,000 people per year from 2011 onwards,
- high levels of interstate migration.

#### Series B

- a total fertility rate of 1.8 babies per woman from 2021 onwards,
- life expectancy at birth increasing to 85.0 years for males and 88.0 years for females by 2056 and remaining constant thereafter,
- net overseas migration of 180,000 per year from 2008 onwards,
- medium levels of interstate migration.

#### Series C

- a total fertility rate of 1.6 babies per woman from 2021 onwards,
- life expectancy at birth increasing to 85.0 years for males and 88.0 years for females by 2056 and remaining constant thereafter,
- net overseas migration of 140,000 per year from 2008 onwards,
- low levels of interstate migration.

Unless otherwise stated the following analysis uses Series A and C to depict a range, although not the full range, of projected populations. At times, to simplify the analysis, only the medium series (i.e. Series B) has been used.

Australia's population in June 2007 of 21.0 million people is projected to increase to between 30.9 and 42.5 million in 2056, and reach between 33.7 and 62.2 million by 2101.

All three series project continuing population growth throughout the projection period. In Series A, the population is projected to reach 42.5 million in 2056 and 62.2 million in 2101. In Series B, the population will reach 35.5 million in 2056 and 44.7 million in 2101. In Series C, the projected population is 30.9 million for 2056, and 33.7 million for 2101 (graph 7.10).

The growth rate of Australia's population reflects the interaction of the components of population change - natural increase (the excess of births over deaths) and net overseas migration (NOM).

In the 10 years to June 2007, Australia's population increased by 1.3% per year on average, with just over half of this growth resulting from natural increase and just under half from NOM. In the last 2 years, Australia's population has grown by 1.5% per year, with NOM contributing more to population growth than natural increase in the year ended June 2007. In 2006–07, there were 274,300 births and 134,800 deaths in Australia, resulting in a natural increase of 139,500 people, while NOM contributed 177,600 people to Australia's population.

In Series C, a state of natural decrease, in which deaths outnumber births, is reached in 2048. However, NOM more than compensates for losses due to natural decrease and Australia's



population continues to increase, albeit slowly, throughout the projection period. A state of natural decrease is also reached in Series B, but only in the last year of the projection (2101). In contrast to the 2004-based set of ABS population projections released in November 2005, no series shows population decline for Australia before the end of the century.

Series B projects continuing population growth over the next 50 years in all states and territories except Tasmania, where the population increases slowly before levelling out by around 2040 and then decreasing marginally from 2051 onwards. Between June 2007 and 2056, the populations of

both Queensland and Western Australia are projected to more than double (with increases of 109% and 104% respectively) while the Northern Territory is projected to increase by 87%. In comparison, the projected growth for Australia for the same period is 69%.

In Series B, New South Wales is projected to remain the most populous state in Australia, although its share of Australia's population will decline from 33% in June 2007 to 29% in June 2056. Queensland is projected to replace Victoria in 2050 as the second most populous state, with Queensland's share of Australia's population increasing from 20% to 25% over the next 50

### 7.11 ACTUAL AND PROJECTED POPULATION—30 JUNE

	2007 (a)		2026		2056		
	Actual '000	Series A '000	Series B '000	Series C '000	Series A '000	Series B '000	Series C '000
Capital city/balance of state							
Sydney	4 334.0	5 487.2	5 426.3	5 358.2	7 649.0	6 976.8	6 565.2
Balance of New South Wales	2 554.0	3 189.9	2 968.8	2 780.2	4 140.1	3 233.4	2 646.1
New South Wales	6 888.0	8 677.0	8 395.1	8 138.5	11 789.1	10 210.2	9 211.3
Melbourne	3 805.8	5 272.3	5 038.1	4 861.7	7 970.7	6 789.2	6 100.9
Balance of Victoria	1 399.1	1 626.1	1 624.1	1 636.3	1 879.6	1 749.1	1 742.9
Victoria	5 204.8	6 898.3	6 662.2	6 498.0	9 850.3	8 538.3	7 843.8
Brisbane	1 857.0	2 908.0	2 681.1	2 465.6	4 955.1	3 979.3	3 237.0
Balance of Queensland	2 324.5	3 645.4	3 356.9	3 129.7	5 966.3	4 759.6	3 998.2
Queensland	4 181.4	6 553.3	6 038.0	5 595.2	10 921.3	8 738.9	7 235.2
Adelaide	1 158.0	1 410.8	1 384.5	1 391.8	1 848.5	1 651.8	1 623.7
Balance of South Australia	426.2	531.5	499.8	451.0	691.4	552.7	406.7
South Australia	1 584.2	1 942.3	1 884.4	1 842.9	2 539.9	2 204.5	2 030.4
Perth	1 554.1	2 455.2	2 267.6	2 112.1	4 164.4	3 358.4	2 815.5
Balance of Western Australia	552.0	796.8	732.9	660.5	1 207.6	935.0	702.3
Western Australia	2 106.1	3 252.0	3 000.5	2 772.7	5 372.0	4 293.4	3 517.7
Hobart	207.4	266.8	245.3	228.2	367.2	279.7	224.0
Balance of Tasmania	286.0	338.5	307.0	277.5	411.1	291.2	202.6
Tasmania	493.4	605.3	552.3	505.7	778.3	571.0	426.6
Darwin	117.4	189.3	165.2	142.4	334.9	243.0	169.2
Balance of Northern Territory	97.5	140.1	119.8	100.8	238.1	158.6	94.9
Northern Territory	214.9	329.4	285.0	243.3	573.0	401.6	264.2
Australian Capital Territory(b)	339.8	462.5	416.5	373.0	683.2	509.3	374.2
Total capital cities(c)	13 373.4	18 452.0	17 624.7	16 933.0	27 973.0	23 787.5	21 109.6
Total balance of states and territories(d)(e)	7 641.7	10 271.0	9 611.9	9 038.9	14 537.3	11 682.5	9 796.5
<b>Australia(e)</b>	<b>21 015.0</b>	<b>28 723.0</b>	<b>27 236.7</b>	<b>25 971.9</b>	<b>42 510.4</b>	<b>35 470.0</b>	<b>30 906.1</b>

(a) Projections based on 2007 estimated resident population.

(b) Canberra and Balance of ACT not projected separately

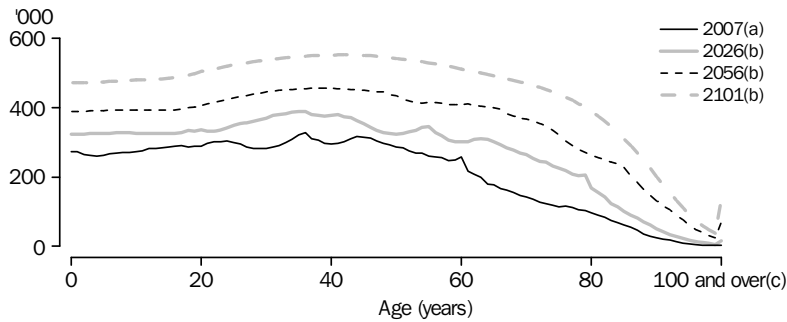
(c) Includes ACT.

(d) Excludes Balance of ACT.

(e) Includes Other Territories. Other Territories comprise Jervis Bay Territory, Christmas Island and the Cocos (Keeling) Islands.

Source: Population Projections, Australia, 2006 to 2101 (3222.0).

### 7.12 AGE STRUCTURE OF THE PROJECTED POPULATION



(a) Preliminary ERP at 30 June (b) Series B population projections. (c) Includes all ages 100 years and over and is not directly comparable with other ages.

Source: *Population Projections, Australia, 2006 to 2101 (3222.0)*.

years, and Victoria's share decreasing marginally, from 25% to 24%. Western Australia is projected to increase its share of Australia's population from 10% in June 2007 to 12% in June 2056, while South Australia's share will decline from 7.5% to 6.2% over the same period. Similarly, Tasmania's share is projected to decline from 2.3% in June 2007 to 1.6% in June 2056. The Northern Territory's share will remain at a similar level, increasing from 1.0% to 1.1%. Likewise the Australian Capital Territory's share will change only marginally, decreasing from 1.6% to 1.4%.

Graph 7.12 illustrates the ageing of Australia's population projected to occur over the next 90 years. Ageing of the population is a trend which has been evident over recent decades as a result of fertility remaining below replacement level and declining mortality rates. In all three series this trend is projected to continue.

The median age of Australia's population is projected to increase from 36.7 years in June 2007 to between 38.7 and 40.7 years in 2026, and to between 41.9 and 45.2 years in 2056. In 2101 the median age of the population is projected to reach between 43.8 and 46.7 years.

Ageing of the population affects the relative sizes of different age groups within the population. The proportion of the population aged under 15 years is projected to decrease from 19% (4.1 million people) of Australia's population in 2007 to between 15% and 18% (4.5 million and 7.5 million) in 2056, and to decline to between 14% and 17% (4.7 million to 10.4 million) in 2101. In contrast, the proportion of the population aged 65 years and over is projected to increase, from 13% (2.8 million people) in 2007 to between 23% and 25% (7.8 million and 10.4 million) in 2056, and 25% and 28% (9.3 million and 17.1 million) in 2101.

### 7.13 POPULATION, SUMMARY INDICATORS

		1901	1947	1971	2007(a)	2026(b)	2056(b)	2101(b)
Total population	'000	3 774.1	7 579.4	13 067.3	21 015.0	27 236.7	35 470.0	44 744.8
Proportion of population								
0–14 years	%	35.2	25.1	28.7	19.4	17.9	16.6	16
15–64 years	%	60.8	66.8	63	67.4	63.4	60.5	59
65 years and over	%	4	8.1	8.3	13.2	18.7	22.9	25
85 years and over	%	0.1	0.4	0.5	1.6	2.4	4.9	5.8
Sex ratio(c)	ratio	110.1	100.4	101.1	98.8	99.4	100.3	101
Median age	years	22.5	30.7	27.5	36.7	39.5	42.4	43.8
Proportion living in capital cities(d)	%	36.8	51.2	63.5	63.6	64.7	67.1	na

na not available

(a) Preliminary estimated resident population at 30 June.

(b) Series B population projections.

(c) Males per 100 females.

(d) Includes Australian Capital Territory.

Source: Australian Historical Population Statistics (3105.0.65.001); Population Projections, Australia, 2006 to 2101 (3222.0).

Table 7.13 presents a range of indicators, such as population size and age structure, to illustrate changes in Australia's population from 1901 to 2101.

## Geographic distribution of the population

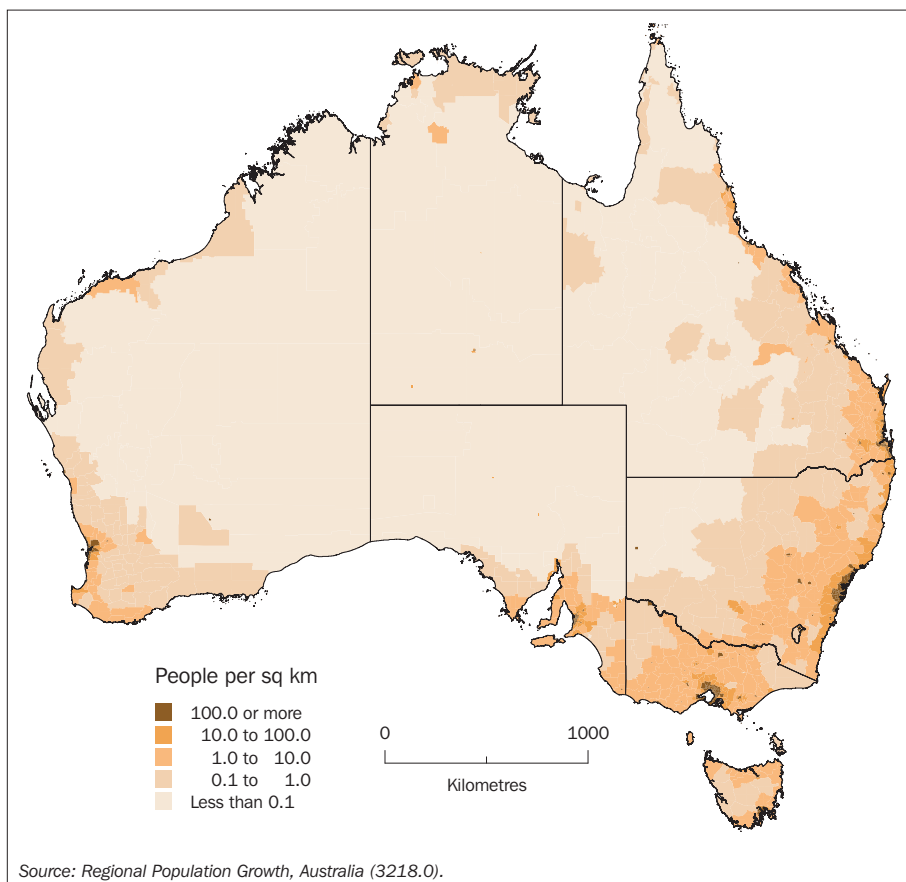
Most of Australia's population is concentrated in two widely separated coastal regions – the south-east and east, and the south-west. Of the two regions, the south-east and east is by far the largest in area and population. The population within these regions is concentrated in urban centres, particularly the state and territory capital cities.

Australia's population density at June 2008 was 2.8 people per square kilometre (sq km),

compared with 2.6 people per sq km in 2003. Of the states and territories, the Australian Capital Territory had the highest population density at June 2008 with 147 people per sq km (reflecting the fact that the city of Canberra constitutes a large proportion of the Australian Capital Territory's area when compared to other capital cities), followed by Victoria with 23 people per sq km. The Northern Territory had a population density of 0.2 people per sq km, the lowest of all the states and territories (reflecting more recent settlement, distance from areas settled earlier, large arid areas and, perhaps, climate).

Population density at June 2008 was highest in the city centres, particularly in the Sydney Statistical Division where the two most densely populated Statistical Local Areas (SLAs) in Australia were located. These were Sydney (C) - East (with 8,400 people per square kilometre)

7.14 POPULATION DENSITY-JUNE 2008



and the neighbouring Sydney (C) - West (7,500). Waverley (A), which is located just east of the Sydney (C) LGA and contains the beach-side suburbs of Coogee, Bronte and Bondi, also had one of the highest population densities in Australia at 7,200 people per square kilometre. The most densely populated SLA in Victoria was Melbourne (C) - Inner with 7,300 people per square kilometre, making it the third most densely populated SLA in the country. Port Phillip (C) - St Kilda, which is on the shores of the bay just south of the city centre, with 6,200 people per square kilometre, completes the list of Australian SLAs that had more than 6,000 people per square kilometre at June 2008. At the other extreme, there were over 250 SLAs in Australia with less than 1 person per square kilometre, close to one-third of which were located in Western Australia. The density of Australia's population at June 2008 is shown in map 7.14.

### Regional population change

At June 2008, capital city Statistical Divisions (SDs) were home to 13.7 million people, or around two-thirds (63.9%) of Australia's population. The capital city SD of Melbourne experienced the largest increase in population of capital cities between 2003 and 2008, followed by Sydney and Brisbane. In terms of percentage growth, however, Darwin was the fastest growing capital city between 2003 and 2008, with an average annual growth rate of 2.3% per year. Perth and Brisbane experienced the next highest average annual growth rates over this period (both at 2.2%). Table 7.15 illustrates the changes in population of Australia's major regions over the five-year period 2003–08.

Generally, the largest growth outside capital city SDs occurred in Australia's coastal regions. Of these regions, the largest increase in population between 2003 and 2008 occurred in Gold Coast-Tweed, up by an average 16,700 people per year (or 3.3% per year). Hervey Bay recorded the fastest growth over the same period with an average growth rate of 5.4% per year. This growth was also faster than any capital city. Mandurah and Bunbury, south of Perth, also had average annual growth rates above 4.0% during the same period.

### Interstate migration

A key contributor changing the distribution of Australia's population is internal migration. During 2007–08, 360,800 people moved from one state or territory to another. This is an increase of 2,100 people compared with the previous year.

In 2007–08, Queensland, Western Australia, Tasmania and the Northern Territory all experienced net interstate migration gains, while New South Wales, Victoria, South Australia and the Australian Capital Territory experienced net interstate migration losses. Queensland has experienced positive net interstate migration for more than 30 years; in contrast, New South Wales has experienced net losses every year since 1978–79. As table 7.16 illustrates, however, any losses due to interstate migration in 2007–08 were offset by growth due to natural increase and/or net overseas migration.

Queensland was the most popular destination for Australians moving interstate, receiving the largest number of arrivals during 2007–08 (100,600 persons). New South Wales and Victoria followed with 85,200 and 65,500 arrivals respectively.

The most common moves were between the three most populous states: New South Wales, Queensland and Victoria. The largest interstate flow was from New South Wales to Queensland (50,400 persons), while the counter flow from Queensland to New South Wales was the second largest (35,500 persons), followed by the flow from New South Wales to Victoria (23,500 persons).

There were also significant movements between bordering states and territories. This is especially apparent between the Australian Capital Territory and surrounding New South Wales, with 10,900 arrivals to the Australian Capital Territory from New South Wales and 10,400 departing from the Australian Capital Territory to New South Wales in 2007–08.

The largest net flow in 2007–08 was between New South Wales and Queensland with Queensland gaining a net 14,900 from New South Wales, and the second largest net movement was between Victoria and Queensland, with Queensland gaining a net 4,400 people from Victoria.

### 7.15 ESTIMATED RESIDENT POPULATION, BY MAJOR REGIONS(a)

	June 2003	June 2008	Change 2003–08	
	'000	'000	no.	% (b)
<b>CAPITAL CITY STATISTICAL DIVISION</b>				
Sydney	4 190 874	4 399 722	208 848	1.0
Melbourne	3 577 411	3 892 419	315 008	1.7
Brisbane	1 744 111	1 945 639	201 528	2.2
Adelaide	1 121 742	1 172 105	50 363	0.9
Perth	1 435 907	1 602 559	166 652	2.2
Greater Hobart	199 853	209 287	9 434	0.9
Darwin	107 440	120 652	13 212	2.3
Canberra	325 340	345 257	19 917	1.2
<b>STATISTICAL DISTRICT</b>				
Newcastle (NSW)	503 160	531 191	28 031	1.1
Wollongong (NSW)	273 788	284 169	10 381	0.7
Nowra-Bomaderry (NSW)	31 007	33 212	2 205	1.4
Lismore (NSW)	30 664	31 926	1 262	0.8
Coffs Harbour (NSW)	47 803	51 538	3 735	1.5
Port Macquarie (NSW)	39 881	42 900	3 019	1.5
Tamworth (NSW)	43 119	45 615	2 496	1.1
Dubbo (NSW)	35 325	36 653	1 328	0.7
Wagga Wagga (NSW)	52 916	56 911	3 995	1.5
Bathurst (NSW)	31 137	32 942	1 805	1.1
Orange (NSW)	37 126	37 991	865	0.5
Albury-Wodonga (NSW/VIC)	97 528	102 894	5 366	1.1
Geelong (VIC)	162 543	172 300	9 757	1.2
Warrnambool (VIC)	30 317	32 712	2 395	1.5
Ballarat (VIC)	85 074	91 787	6 713	1.5
Bendigo (VIC)	81 434	88 031	6 597	1.6
Shepparton (VIC)	45 564	47 710	2 146	0.9
La Trobe Valley (VIC)	74 743	78 531	3 788	1.0
Mildura (VIC)	45 912	49 280	3 368	1.4
Sunshine Coast (QLD)	202 780	237 562	34 782	3.2
Bundaberg (QLD)	58 833	66 176	7 343	2.4
Hervey Bay (QLD)	43 123	56 165	13 042	5.4
Rockhampton (QLD)	69 040	75 497	6 457	1.8
Gladstone (QLD)	41 549	48 796	7 247	3.3
Mackay (QLD)	68 532	81 148	12 616	3.4
Townsville (QLD)	140 362	162 730	22 368	3.0
Cairns (QLD)	118 503	142 001	23 498	3.7
Toowoomba (QLD)	113 714	125 339	11 625	2.0
Gold Coast-Tweed (QLD/NSW)	475 472	558 888	83 416	3.3
Mandurah (WA)	63 562	78 612	15 050	4.3
Bunbury (WA)	51 366	63 202	11 836	4.2
Kalgoorlie/Boulder (WA)	29 890	31 509	1 619	1.1
Geraldton (WA)	31 861	35 361	3 500	2.1
Launceston (TAS)	100 515	104 649	4 134	0.8
Burnie-Devonport (TAS)	78 198	81 144	2 946	0.7
Canberra-Queanbeyan (ACT/NSW)	369 769	395 126	25 357	1.3

(a) Based on 2008 Australian Standard Geographical Classification boundaries.

(b) Average annual growth rate.

Source: Regional Population Growth, Australia (3218.0).

### 7.16 COMPONENTS OF POPULATION GROWTH RATE—2007–2008

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
	%	%	%	%	%	%	%	%
Natural Increase	0.58	0.71	0.80	0.49	0.89	0.50	1.33	0.91
Net overseas migration	0.89	1.11	0.98	0.90	1.64	0.31	0.45	0.49
Net interstate migration	-0.32	-0.05	0.55	-0.28	0.23	0.07	0.56	-0.08
Total population growth	1.15	1.77	2.33	1.11	2.76	0.88	2.33	1.32

Source: Migration, Australia (3412.0).

## Aboriginal and Torres Strait Islander population

There are no accurate estimates of the population of Australia before European settlement. Many estimates were based on post-1788 observations of a population already reduced by introduced diseases and other factors. Smith (1980) estimated the absolute minimum pre-1788 population at 315,000. Other estimates put the figure at over one million people, while recent archaeological evidence suggests that a population of 750,000 could have been sustained.

Whatever the size of the Indigenous population before European settlement, it declined dramatically under the impact of new diseases, repressive and often brutal treatment, dispossession, and social and cultural disruption and disintegration (see the article *Statistics on the Indigenous Peoples of Australia*, in *Year Book Australia 1994*). The decline of the Indigenous population continued well into the 20th century.

More recently, changing social attitudes, political developments, improved statistical coverage and a broader definition of Indigenous origin have all contributed to the increased likelihood of people

identifying as being of Aboriginal or Torres Strait Islander (Indigenous) origin. This is reflected in the large increases in the number of people who are identified as being Indigenous, particularly in the 1996 and 2001 Censuses, with increases in excess of those which can be attributed to natural increase in the Indigenous population. However, this phenomenon has not been an issue in the 2006 Census of Population and Housing.

In developing estimates of the size and age structure of the Indigenous population, Census counts are adjusted for undercount as well as other factors, including cases where Indigenous status was not known. These estimates are referred to as 'experimental' estimates of the Indigenous population.

Table 7.17 shows the distribution of the experimental estimated resident Indigenous population by state and territory for 1996, 2001 and 2006. The estimates for 1996 and 2001 are reverse survival estimates based on the June 2006 final Indigenous population estimates, and the experimental Indigenous life tables for the period 2005–2007. The final estimates for 2006 are based on the August 2006 Census of Population and

### 7.17 EXPERIMENTAL ESTIMATES OF INDIGENOUS POPULATION(a)

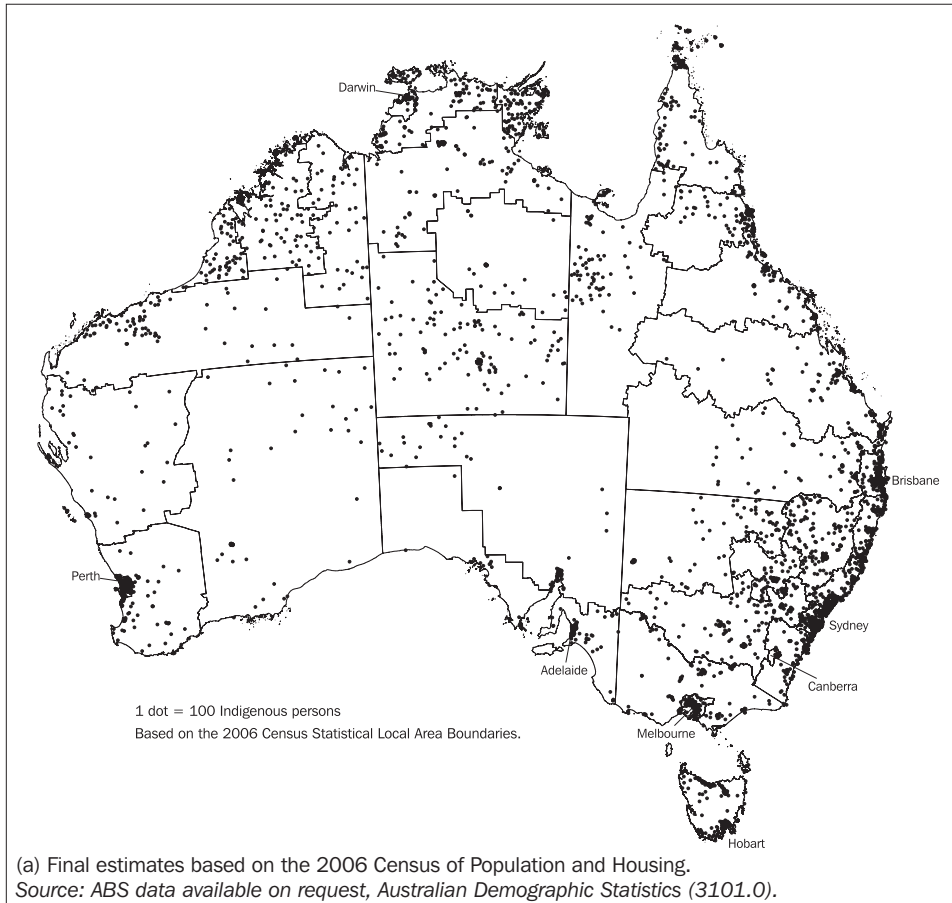
	1996		2001		2006	
	000	%	000	%	000	%
New South Wales	119.3	29.3	136.3	29.4	152.7	29.5
Victoria	26.3	6.5	30.0	6.5	33.5	6.5
Queensland	112.2	27.5	128.6	27.8	144.9	28.0
South Australia	22.6	5.5	25.4	5.5	28.1	5.4
Western Australia	56.8	13.9	64.3	13.9	71.0	13.7
Tasmania	14.6	3.6	16.5	3.6	18.4	3.6
Northern Territory	52.1	12.8	58.0	12.5	64.0	12.4
Australian Capital Territory	3.3	0.8	3.8	0.8	4.3	0.8
<b>Australia (b)</b>	<b>407.3</b>	<b>100.0</b>	<b>463.1</b>	<b>100.0</b>	<b>517.0</b>	<b>100.0</b>

(a) As at 30 June and based on the 2006 Census of Population and Housing.

(b) Includes Other Territories, i.e., Jervis Bay, Christmas Island and Cocos (Keeling) Island.

Source: Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021 (3238.0).

### 7.18 INDIGENOUS POPULATION DISTRIBUTION—2006(a)



Housing and their geographical distribution is in map 7.18.

The final estimated resident Indigenous population at 30 June 2006, was 517,000 people or 2.5% of the total Australian population. Indigenous people of Aboriginal origin contributed 90% of the total Indigenous population; people of Torres Strait Islander origin comprised 6%, and those of both Aboriginal and Torres Strait Islander origin comprised 4%.

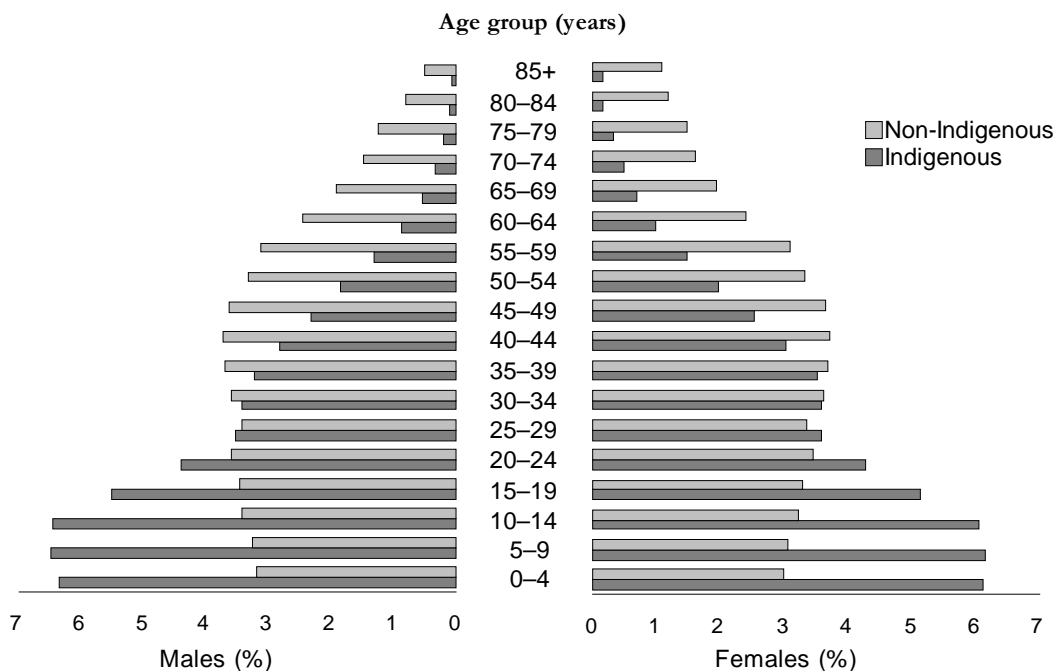
Of the total Indigenous population at 30 June 2006, 152,700 (29%) people lived in New South Wales, 144,900 (28%) in Queensland, 71,000 (15%) in Western Australia and 64,000 (13%) in the Northern Territory. The Northern Territory had the largest proportion of its population who were Indigenous (30%), compared with 4% or

less for all other states and the Australian Capital Territory.

The Indigenous population is a relatively young population, with a median age of 21 years, compared with 37 years for the non-Indigenous population. The younger age structure of the Indigenous population is shown in graph 7.19. In 2006, 38% of Indigenous people were aged under 15 years compared with 19% of non-Indigenous people. People aged 65 years and over comprised 3% of the Indigenous population and 13% of the non-Indigenous population.

The age structure of the Indigenous population reflects higher rates of fertility, and deaths occurring at younger ages. Although the total fertility rate among Indigenous women has fallen in recent decades, from around 6.0 babies per

## 7.19 AGE DISTRIBUTION OF THE INDIGENOUS AND NON-INDIGENOUS POPULATION — June 2006 (a)



(a) Final estimates based on the 2006 Census of Population and Housing.

Source: *Australian Demographic Statistics (3101.0)*.

woman in the 1960s to 2.1 babies per woman in 2005, then a slight increase to 2.4 babies per woman in 2007, it remains higher than the fertility rate for the total Australian female population (1.9 babies per woman in 2007). In the period 2005-2007, life expectancy at birth was estimated to be 67.2 years for Indigenous males and 72.9 years for Indigenous females. This is well below the estimates of 78.5 years and 82.4 years for total males and females respectively, for the same period. Indigenous life expectancy estimates for 2005-07 are considerably higher than the previously published ABS estimates for the period 1996-2001 (59.4 years for Indigenous males and 64.8 years for Indigenous females). The observed differences in life expectancy estimates should not be interpreted as measuring changes in Indigenous life expectancy over time.

The latest projections of the Indigenous population, produced by the ABS for the period 2007 to 2021, are based on the results of the 2006 Census of Population and Housing. Assuming that Indigenous life expectancy at birth remains constant at 67.3 years for males and 73.0 years for

females (which are the estimates for the 2006-07 financial year), Australia's Indigenous population is projected to increase from 517,000 people in 2006 to 640,700 people in 2016, and to 713,300 people in 2021 (low series). Under the assumption that Indigenous life expectancy increases by 5.0 years between 2006 and 2021 (i.e. an average increase of 0.3 years per year of projection), the Indigenous population is projected to increase to 643,800 people in 2016, and to 721,100 people in 2021 (high series). The projected average annual growth rate of the Indigenous population is 2.2% for both the low series and the high series. This projected growth rate is slightly higher than the observed increase in the total Australian population for the year ending December 2008 (1.9%).

Indigenous populations of all states and territories are projected to continue growing between 2006 and 2021. Queensland is projected to have the fastest growing Indigenous population among all the Australian states/territories, with an average annual growth rate between 2.6% and 2.7%. This is followed by



Victoria, the Australian Capital Territory and Tasmania (between 2.3% and 2.5%). The Northern Territory Indigenous population is projected to have the lowest average growth rate (between 1.6% and 1.7%), while New South Wales is projected to grow at a lower rate of about 2.1% to 2.2% per year. Although the June 2006 experimental estimates of Indigenous population in New South Wales are higher than in Queensland (152,700 versus 144,900), because of higher average growth rate the Indigenous population in Queensland is projected to surpass the New South Wales Indigenous population by the year 2016.

## Births

In 2007, there were 285,200 births registered in Australia, resulting in a total fertility rate of 1.92 babies per woman. This was 19,300 (7.2%) more births than the number registered during 2006. Until recently, Australia had been experiencing the second of two long periods of fertility decline since 1901 - from 1907 to 1934, and from 1962 to 2001 (excluding a plateau from 1966 to 1971). The total fertility rate reached a low of 1.73 babies per woman in 2001 and has increased since then, to 1.92 babies per woman in 2007.

During the first decade of the 20th century, the total fertility rate remained at around 3.7 to 4.0 babies per woman, then consistently declined over the next two and a half decades. By 1934, during the Depression, the total fertility rate fell to 2.1 babies per woman. It then increased during the second half of the 1930s, as women who had deferred child-bearing in the Depression years

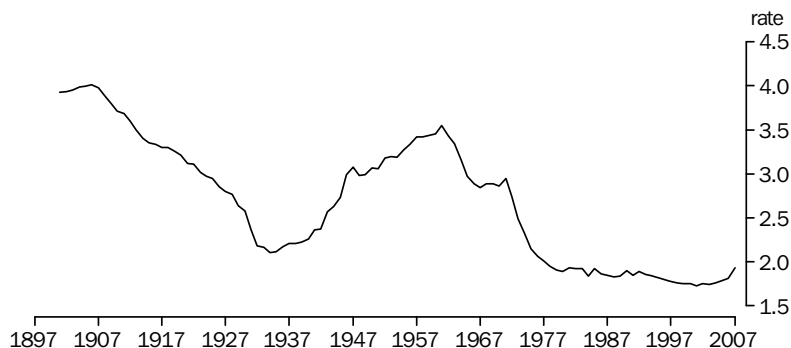
began to have children. Fertility increased through World War II and the 1950s, and peaked in 1961 when the total fertility rate reached 3.5 babies per woman (graph 7.20).

After 1961, the total fertility rate fell rapidly, to 2.9 babies per woman in 1966. This fall can be attributed to changing social attitudes, in particular a change in people's perception of desired family size, facilitated to an extent by the oral contraceptive pill becoming available. During the 1970s, the total fertility rate dropped further, falling to replacement level (2.1 babies per woman) in 1976, below which it has since remained. This fall was more marked than the fall in the early-1960s and has been linked to increasing participation of women in education and the labour force, changing attitudes to family size, lifestyle choices and greater access to contraceptive measures and abortion.

In the late 1970s, the total fertility rate began to decline at a slower rate, continuing through the 1980s and 1990s, until reaching a low of 1.73 babies per woman in 2001. Since then, the total fertility rate has increased to 1.92 babies per woman in 2007, the highest recorded since 1985.

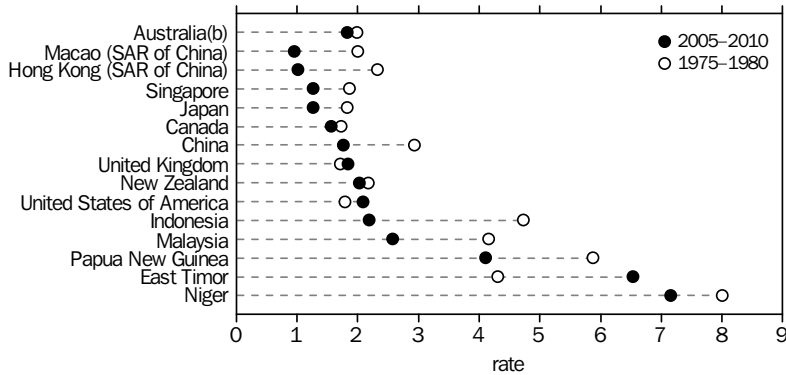
According to World Population Prospects: The 2008 Revision by United Nations Population Division (UNPD), the world average total fertility rate for the five-year period 2005–2010 is estimated at 2.56 babies per woman. However, total fertility rates for individual countries vary considerably. Many factors can influence a country's fertility rate, such as differences in social and economic development and the prevalence of contraceptive use. In general, developing

**7.20 TOTAL FERTILITY RATE(a), Australia**



(a) Births per woman.  
Source: Births, Australia (3301.0).

**7.21 TOTAL FERTILITY RATES(a), Selected countries**



(a) Births per woman.  
 (b) For Australia, total fertility rate is based on ABS statistics.

Source: *Births, Australia (3301.0)*; UNPD, *World Population Prospects: The 2008 Revision*, last viewed September 2009, <<http://www.un.org>>.

countries have higher fertility rates than developed countries.

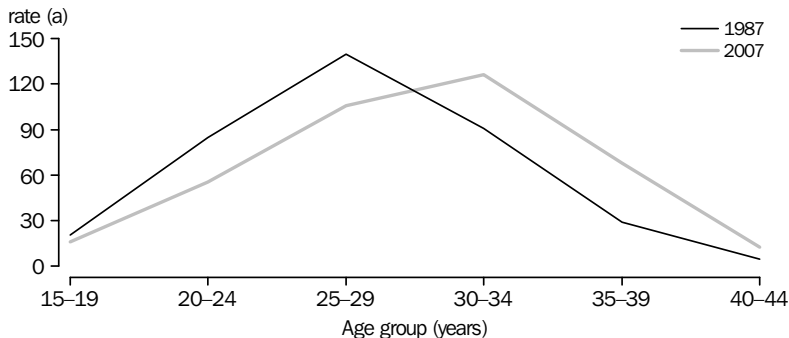
Over the last 30 years, fertility has declined in most countries. According to the United Nations, Indonesia displayed a large decline in the average total fertility rate, from 4.73 in the period 1975–1980 to 2.19 in 2005–2010 (graph 7.21). During the period 2005–2010, Macao (SAR of China) is projected to have one of the lowest average total fertility rates (0.95), followed by Hong Kong (SAR of China) (1.02). Several European countries also have low fertility, including the Ukraine (1.31), Poland (1.27), Italy (1.38), Germany (1.32) and the Russian Federation (1.37). Although below the world

average of 2.56, Australia's total fertility rate for 2007 of 1.92 babies per woman is comparable to other developed countries.

In contrast, many African countries have high fertility. Projections for the period 2005–2010 have Niger (7.15) among the highest. In South-East Asia, Timor-Leste (6.53) has one of the world's highest fertility rates, increasing from a total fertility rate in the period 1975–1980 of 4.31 babies per woman.

Despite the recent increase in fertility rates, Australian women are continuing to delay child-bearing. The median age at child-bearing increased from 27.7 years in 1987 to 29.4 years in

**7.22 AGE-SPECIFIC FERTILITY RATES**



(a) Births per 1,000 women.

Source: *Births, Australia (3301.0)*.

## 7.23 SELECTED SUMMARY MEASURES OF FERTILITY

	Registered births	Crude birth rate(a)	Total fertility rate(b)	Exnuptial births(c)
	'000	no.	no.	%
1997	251.8	13.6	1.8	28.1
1998	249.6	13.3	1.8	28.7
1999	248.9	13.1	1.8	29.2
2000	249.6	13.0	1.8	29.2
2001	246.4	12.7	1.7	30.7
2002	251.0	12.8	1.8	31.3
2003	251.2	12.6	1.7	31.6
2004	254.2	12.6	1.8	32.2
2005	259.8	12.7	1.8	32.2
2006	265.9	12.8	1.8	32.7
2007	285.2	13.5	1.9	33.4

(a) Births per 1,000 population.

(b) Births per woman.

(c) Births to unmarried mothers as a proportion of total births.

Source: Births, Australia (3301.0).

1997, then to 30.7 years in 2007. Since 2003, the median age at child-bearing has experienced little variation, remaining between 30.5 and 30.8 years. Over the last 20 years there has been a fall in the fertility rate of teenagers, from 20.6 babies per 1,000 teenage females in 1987 to 16.0 in 2007. Conversely, the fertility rate of women aged 40–44 years more than doubled, from 4.8 babies per 1,000 women in 1987 to 12.6 in 2007 (graph 7.22). All child-bearing ages experienced higher fertility in 2007 than in 2006. In recent years, Australia's total fertility rate has been increasing, resulting in a higher total fertility rate in 2007 than that experienced in the last 20 years.

An alternative to the 'snapshot' measure provided by the total fertility rate is the total number of children ever born per woman. These data reveal a decline over time in the average number of children ever born by age of women. While at younger ages the decline in the average number of children may be related to the postponement of child-bearing, the average number of children among women aged 40–44 years also declined. Completed fertility (the average number of births a cohort of females have borne) for women born in 1955 show an average of 2.2 births per woman. The ABS projections show that females born in 2007 would have an average of 1.8 births per woman, if current trends were to continue.

Table 7.23 provides summary measures of fertility for the period 1997 to 2007.

## Deaths

In 2007, there were 137,900 deaths (70,600 males and 67,300 females) registered in Australia, an increase of approximately 4,100 deaths (or 3.1%) compared with the number of deaths registered in 2006 (133,700). Since 1987, the number of deaths registered has increased by around 0.5% per year on average for males and 1.1% per year for females, with year to year fluctuations. The steady increase in the number of deaths over time reflects the increasing size of the population and, in particular, the increasing number of older people. With the continued ageing of the population, the number of deaths is projected to continue to increase throughout the remainder of the century (Series B, *Population Projections, Australia, 2006 to 2101*(3222.0)).

Despite the ageing of the population over the last 20 years, death rates have continued to decline over the long-term. The crude death rate declined from 7.2 deaths per 1,000 population in 1987 to 6.4 deaths per 1,000 population in 2005, and has risen slightly since then, to 6.5 deaths per 1,000 population in 2007. Given the ageing of Australia's population, the overall decline in the crude death rate indicates a considerable decline in age-specific death rates over the period.

The standardised death rate (SDR), which eliminates the effect of changes in the age structure of a population over time, was 6.0 deaths per 1,000 standard population in 2007, the same as the previous two years and down by 34% from 1987 (9.1). The rates for 2005, 2006 and 2007 are the lowest on record.

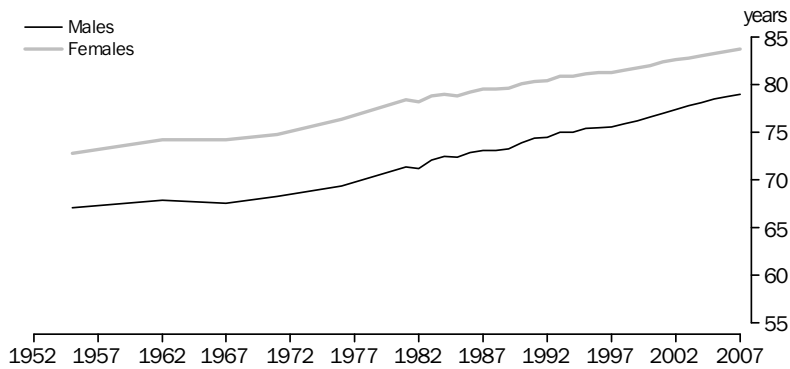
## Life expectancy

Life expectancy is the average number of additional years a person of a given age and sex might expect to live if the age-specific death rates of the given period were to continue throughout his or her remaining lifetime.

Over the past century, male life expectancy at birth has increased by 24 years, from 55.2 years in 1901–1910 to 79.0 years in 2005–2007 (graph 7.24). Similarly, female life expectancy at birth has increased by 25 years, from 58.8 years to 83.7 years. The increase in life expectancy at birth reflects declining death rates at all ages.

Improvements in living conditions in the early-20th century, such as better water supplies,

## 7.24 LIFE EXPECTANCY AT BIRTH



Source: Australian Historical Population Statistics (3105.0.65.001); Deaths, Australia (3302.0).

sewerage systems, food quality and health education resulted in an overall decline in mortality. The continuing reduction in mortality in the latter half of last century is attributed to improving social conditions and advances in medical technology such as mass immunisation and antibiotics. The past two decades in particular have seen further increases in life expectancy. These increases are due in part to lower infant mortality, fewer deaths among young adults from motor vehicle accidents and fewer deaths among older men from heart disease. The reduction in the number of deaths from heart disease has been related to medical advances and behavioural changes such as improvements in diet and a reduction in smoking.

During the 20th century, life expectancy of new-born girls was consistently higher than that of new-born boys, with the difference peaking at about seven years in the 1970s and early-1980s. The difference was largely due to the significant decline in heart disease, stroke and respiratory disease mortality among women. In recent years, the gap in life expectancy between new-born males and females narrowed to around five years. This can be attributed to the large reductions in death rates of males aged 45 years and over, and particularly to the reduction in heart disease deaths among males.

The increase in life expectancy for older persons has implications for retirement planning and income policies. Life expectancy of 65 year old males increased from 15 years in 1985–1987 to 19 years in 2005–2007, while life expectancy of 65

year old females increased from 19 years to 22 years during the same period.

Australians have a life expectancy at birth which compares well with that experienced in other developed nations. Life expectancy at birth of Australian males (79.0 years) is exceeded only by Iceland, Hong Kong (SAR of China) and Switzerland. Life expectancy at birth of Australian females (83.7 years) is exceeded by Japan, Hong Kong (SAR of China), France, Switzerland, Italy and Spain. Combined Australian male and female life expectancy of new-born babies for 2005–2010 was 81.5 years. This was higher than the level for Canada (80.7 years), New Zealand (80.2 years), the United Kingdom (79.4 years) and the United States of America (79.2 years).

## 7.25 EXPECTANCY OF LIFE AT SPECIFIC AGES(a)

	Males	Females
At exact age (years)	years	years
0	79.0	83.7
10	69.6	74.2
20	59.7	64.3
30	50.2	54.5
40	40.7	44.7
50	31.4	35.2
60	22.6	26.0
70	14.7	17.4
80	8.3	10.0
90	4.2	4.8
100	2.4	2.6

(a) Calculated using data for the three years 2005–07. Source: Deaths, Australia (3302.0).

## 7.26 SELECTED SUMMARY MEASURES OF MORTALITY

	Registered deaths	Crude death rate (a)	Infant mortality rate (b)	LIFE EXPECTANCY AT BIRTH (c)	
				AT BIRTH (c)	
				Males	Females
	'000	no.	no.	years	years
1997	129.4	7.0	5.3	75.6	81.3
1998	127.2	6.8	5.0	75.9	81.5
1999	128.1	6.8	5.7	76.2	81.8
2000	128.3	6.7	5.2	76.6	82.0
2001	128.5	6.6	5.3	77.0	82.4
2002	133.7	6.8	5.0	77.4	82.6
2003	132.3	6.6	4.8	77.8	82.8
2004	132.5	6.6	4.7	78.1	83.0
2005	130.7	6.4	5.0	78.5	83.3
2006	133.7	6.5	4.7	78.7	83.5
2007	137.9	6.5	4.2	79.0	83.7

(a) Deaths per 1,000 population.

(b) Infant deaths per 1,000 live births.

(c) Data are based on 3-year averages, with the year shown being the last year of the 3-year period.

Source: Australian Historical Population Statistics (3105.0.65.001); Deaths, Australia (3302.0).

A life table is a statistical model that is constructed from the death rates of a population at different ages. It is frequently used to express death in terms of the probability of dying. In its simplest form, a life table is generated from age-specific death rates and the resulting values are used to measure mortality, survivorship and life expectancy. Table 7.25 shows the expectations of additional years of life at specific ages for Australian males and females using deaths for the period 2005–2007.

Table 7.26 provides selected summary measures of mortality for the period 1997 to 2007.

## International migration

Each year Australia's population increases as a result of net overseas migration and natural

increase (the number of births minus the number of deaths). Net Overseas Migration (NOM) is the net gain or loss of population through immigration to Australia and emigration from Australia. It is based on an international travellers' duration of stay being in or out of Australia for 12 months or more. In 2007–08, there were 442,100 arrivals that contributed to NOM and 228,400 departures, providing a net gain of 213,700 people (Table 7.27).

Since 2006–07, Australia has employed an improved method of estimating NOM where a traveller can be added to or subtracted from Australia's population through NOM if the traveller has stayed in or been absent from Australia for a period of 12 months or more over a 16 month period. The implementation of this method has resulted in a break in time series with earlier NOM estimates based on a 12 out of 12 months rule.

Until recently, Australia's population growth has predominantly come from natural increase. However, since 1998–99, NOM comprised 45% or more of Australia's population growth, with 2003–04 being the exception (43%). In 2007–08, a NOM estimate of 213,700 people represented 59% of Australia's population growth for the year. The peaks and troughs in Australia's total population growth are clearly driven by NOM as shown in graph 7.28.

The main effect of NOM on the age structure of Australia's population is that it results in a larger proportion of persons of early working age (14–34 years). In 2007–08, persons aged 15–34 years comprised 61% of NOM compared with 28% of Australia's total population. Persons aged 0–14 years comprised 20% of NOM and 19% of Australia's population, and persons aged 65 years and over comprised 0.5% of NOM and 13% of Australia's population (graph 7.29).

## 7.27 NET OVERSEAS MIGRATION COMPONENTS

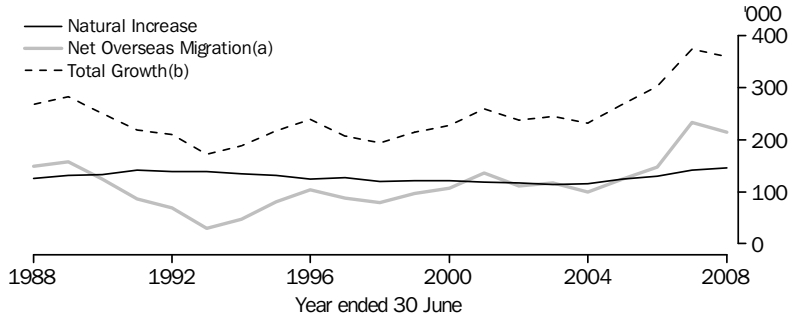
	2000–01	2002–03	2004–05	2006–07	2007–08(a)
	'000	'000	'000	'000	'000
NOM Arrivals	348.6	392.9	431.1	437.5	442.1
NOM Departures	212.9	276.4	307.3	204.7	228.4
NOM (b)	135.7	116.5	123.8	232.8	213.7

(a) Estimates for 2007–08 are preliminary.

(b) Estimates for NOM contain a break in time series. Estimates from 2006–07 use an improved methodology based on the 12/16 rule, all years prior to this use the 12/12 rule.

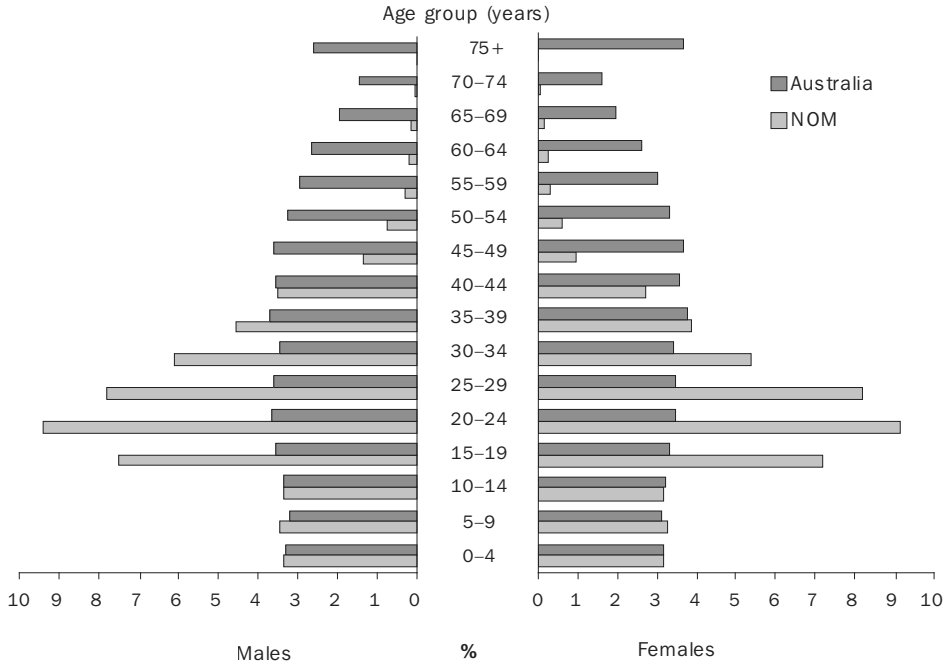
Source: Migration, Australia (3412.0).

**7.28 GROWTH AND COMPONENTS OF POPULATION CHANGE, Australia**



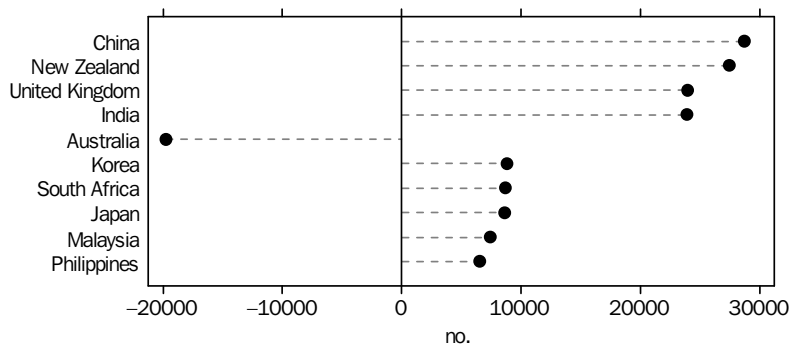
(a) Contains a break in time series at 30 June 2006. Estimates for 2007–08 are preliminary.  
 (b) Up to 30 June 2006 estimates include intercensal discrepancy.  
 Source: *Migration, Australia (3412.0)*.

**7.29 AUSTRALIAN AND NET OVERSEAS MIGRATION POPULATION STRUCTURES, Age and sex–2007–08(a)**



(a) Estimates for 2007–08 are preliminary.  
 Source: *Migration, Australia (3412.0)*.

### 7.30 NET OVERSEAS MIGRATION, Top 10 Countries of Birth—2007–08(a)



(a) Estimates for 2007–08 are preliminary.

Source: *Migration, Australia* (3412.0).

### 7.31 NET INTERNATIONAL MIGRATION(a), Selected countries

	2000–05		2005–2010		PERCENTAGE CHANGE, 2000–05 TO 2005–10
	Number	Migration rate(b)	Number	Migration rate(b)	
	'000	rate	'000	rate	%
Australia	128	6.5	100	4.8	-21.9
Canada	218	6.9	210	6.3	-3.7
China	-412	-0.3	-346	-0.3	-16.0
India	-308	-0.3	-200	-0.2	-35.1
Japan	16	0.1	30	0.2	87.5
Korea, Republic of	-13	-0.3	-6	-0.1	-53.8
Malaysia	30	1.2	26	1.0	-13.3
New Zealand	21	5.1	10	2.4	-52.4
South Africa	140	3.0	140	2.8	—
United Kingdom	190	3.2	190	3.1	—
United States of America	1 135	3.8	1 010	3.3	-11.0

— nil or rounded to zero (including null cells)

(a) Medium variant.

(b) Net overseas migration per 1,000 population.

Source: United Nations Population Division, *World Population Prospects: The 2008 Revision*. Accessed 17 Sep 2009.

During 2007–08, travellers who contributed to NOM were born in over 200 countries. Migrants born in China were the highest contributors to Australia's population with a positive NOM of 28,700 persons. This was followed closely by migrants born in New Zealand (27,400), the United Kingdom (24,000) and India (23,900). Historically, the United Kingdom and New Zealand have ranked as the major source countries. However, in 2005–06 China moved into the top position.

In 2007–08, of the top 10 countries of birth contributing to NOM, only those who were born in Australia had more departures than arrivals, with 19,800 persons being subtracted from Australia's population (as seen in graph 7.30).

The United Nations' *World Population Prospects: The 2008 Revision*, presents international migration statistics averaged over five years to improve comparability between countries. As with Australia, countries such as Canada, the United States of America and United Kingdom experienced high net international migration

rates in 2005–10 (rates above 3.0 per 1,000 population). In numeric terms, in the 2005–10 period, for selected countries, the gains from net international migration ranged from an average 10,000 persons per year for New Zealand to one million persons for the United States of America. The losses ranged from 6,000 persons for the Republic of (South) Korea to 346,000 persons for China (table 7.31).

## Country of birth

Australia's population has increased each year since the end of World War II, due to a combination of high post-war fertility and high levels of migration. In 1901, 23% of Australia's population was born overseas. By 1947, the proportion of the overseas-born population had declined to 10%. The creation of a national government immigration portfolio in 1945 accompanied a gradual increase in the proportion of overseas-born Australians, reaching 22% by 1977. During the 1980s, 1990s and the early 2000s the overseas-born population fluctuated between 21% and 23%. At 30 June 2008, the number of overseas-born Australians was 5.5 million, representing just over one-quarter (26%) of the total population (graph 7.32).

The past 25–30 years have seen patterns of immigration change and the diversity of countries of birth increase. Of the overseas-born population, the United Kingdom remains the largest source country, despite having fallen from 34% of the overseas-born population in 1981 to 21% in 2008. Some of the older migrant streams, such as people born in Italy and Greece, have

declined in absolute numbers as their populations aged and the number of deaths exceeded net gains in population from more recent migration.

In contrast, over the same time frame, the New Zealand-born population living in Australia nearly trebled, and in 2008 was the second largest overseas-born group making up 9% of the overseas-born population. Some other migrant streams that have increased their proportion over recent decades include those born in China, India, the Philippines, South Africa, and Malaysia (see table 7.33). For example, the China-born population increased twelve fold, from 25,200 people in 1981 to 313,600 people in 2008 (making up 6% of the overseas-born population from 1% in 1981). The India-born population increased its share from 1% in 1981 (41,000 people) to 4% in 2008 (239,300 people).

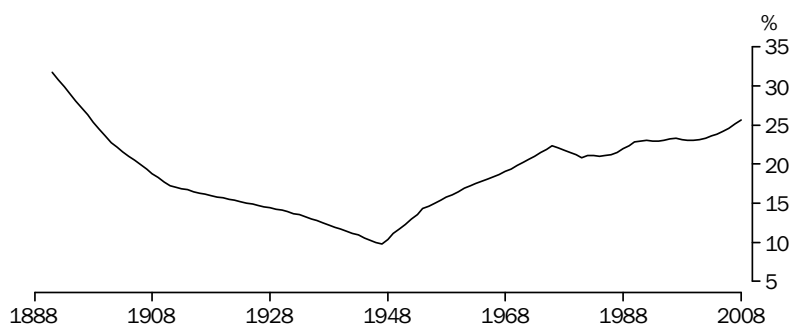
The 2006 Census data show that 26% of people born in Australia had at least one overseas-born parent. Of these, 44% had both parents born overseas, 34% had their father (but not their mother) born overseas and 23% had their mother (but not their father) born overseas (graph 7.34).

## Marriages, divorces and de facto relationships

### Marriages

Marriage rates in Australia have fluctuated since 1901, broadly in response to prevailing economic and social conditions and changing age structures over time. The crude marriage rate (the number

**7.32 AUSTRALIA'S POPULATION BORN OVERSEAS(a)(b)**



(a) Census years only until 1981. Post 1981 based on estimated resident population at 30 June.

(b) Estimates for 2007–08 are preliminary.

Source: *Migration, Australia* (3412.0).



### 7.33 MAIN COUNTRIES OF BIRTH(a)

	1954(b)	1961(b)	1971(b)	1981(b)	1996(c)	2001(c)	2006(c)	2008(c)
	'000	'000	'000	'000	'000	'000	'000	'000
United Kingdom(d)	664.2	755.4	1 081.3	1 075.8	1 164.1	1 126.9	1 153.3	1 166.5
New Zealand	43.4	47.0	74.1	160.7	315.1	394.1	476.7	494.6
China(e)	10.3	14.5	17.1	25.2	121.1	157.0	203.1	313.6
India	12.0	14.2	28.7	41.0	84.8	103.6	153.6	239.3
Italy	119.9	228.3	288.3	275.0	259.1	238.5	220.5	221.7
Vietnam	na	na	na	40.7	164.2	169.5	180.4	193.3
Philippines	0.2	0.4	2.3	14.8	102.7	112.2	135.6	155.1
South Africa	6.0	7.9	12.2	26.5	61.7	86.9	118.8	136.2
Greece	25.9	77.3	159.0	145.8	141.8	132.5	125.8	130.5
Germany	65.4	109.3	110.0	109.3	120.8	117.5	114.9	126.5
Malaysia	2.3	5.8	14.4	30.5	83.0	87.2	103.9	120.1
Netherlands	52.0	102.1	98.6	95.1	95.3	91.2	87.0	90.3
Lebanon	3.9	7.3	23.9	49.4	77.6	80.0	86.6	89.1
Hong Kong (SAR of China)	1.6	3.5	5.4	15.3	77.1	75.2	76.3	87.5
Total overseas-born	1 285.8	1 778.3	2 545.9	2 950.9	4 258.6	4 482.1	4 956.9	5 485.9
Australian-born	7 700.1	8 729.4	10 173.1	11 388.8	14 052.1	14 931.2	15 648.6	15 945.9
Total population(f)	8 986.5	10 508.2	12 719.5	14 516.9	18 310.7	19 413.2	20 605.5	21 431.8

na not available

(a) Country selection based on population at 30 June 2008.

(b) Census counts.

(c) Estimated resident population at 30 June.

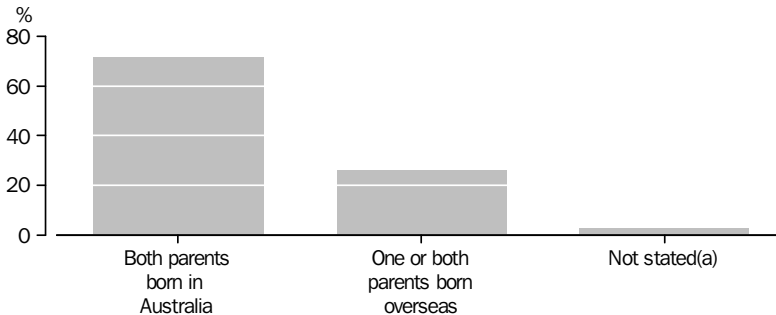
(d) Includes Ireland in 1954, 1961 and 1971.

(e) Excludes SARs and Taiwan Province.

(f) Includes country of birth 'Not stated' and 'At sea'.

Source: Migration, Australia (3412.0).

### 7.34 BIRTHPLACE OF PARENTS OF AUSTRALIAN-BORN PEOPLE—2006



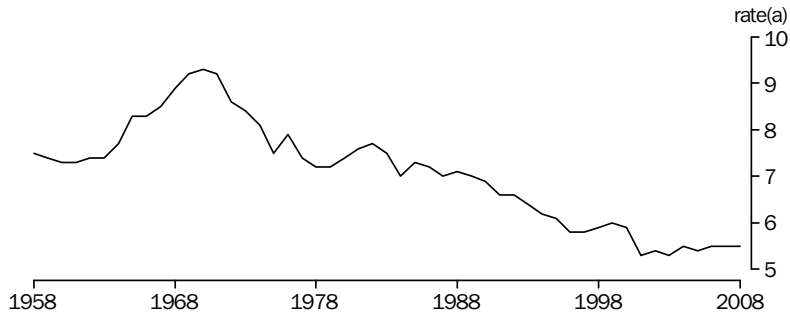
(a) Includes persons who stated one parent was Australian-born and did not state the birthplace of the other parent.

Source: ABS data available on request, 2006 Census of Population and Housing.

of marriages registered in a calendar year per 1,000 population) has fallen in times of depression or recession (e.g. in the 1930s) and increased at other times such as during, and immediately after, the two world wars. Falls in the crude marriage rate since 1970 can be mainly attributed to changes in attitudes to marriage and living arrangements that have occurred since then.

There were 118,756 marriages registered in Australia in 2008, resulting in a crude marriage rate of 5.5 marriages per 1,000 population. The highest crude marriage rate recorded was 12.0 marriages per 1,000 population in 1942. Fluctuations in the crude marriage rate between 1958 and 2008 are shown in graph 7.35, which suggest that crude marriage rates in Australia have remained steady over the last few years.

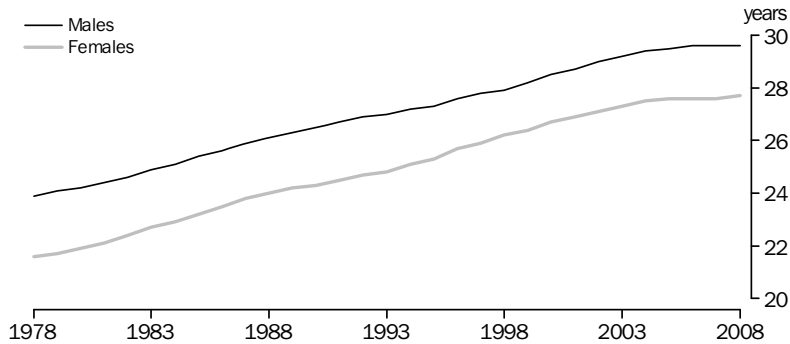
### 7.35 CRUDE MARRIAGE RATE



(a) Marriages per 1,000 of estimated resident population at 30 June.

Source: *Marriages and Divorces, Australia (3310.0)*;  
*Australian Historical Population Statistics (3105.0.65.001)*.

### 7.36 MEDIAN AGE AT FIRST MARRIAGE



Source: *Marriages and Divorces, Australia (3310.0)*;  
*Australian Historical Population Statistics (3105.0.65.001)*.

The median age of people married in 2008 was 31.6 years for males and 29.3 years for females. Until recently, median age at marriage was increasing gradually over time for both males and females. Since 2006, the median age for males has remained at 31.6 years. The median age for females has been stable at 29.3 years since 2005. In 2008, the median age of males married for the first time was 29.6 years, and 27.7 years for females. The gradual increase in the age profile of people marrying for the first time is shown in graph 7.36. Part of this increase can be attributed to the increasing incidence of de facto relationships. Another factor is young people staying in education longer.

Marriage data for 2008 reflect a continuation of a 30-year trend of more Australian couples living together prior to registered marriage. In 1975,

### 7.37 SELECTED SUMMARY MEASURES OF MARRIAGE

	Registered marriages	Crude marriage rate (a)	MEDIAN AGE AT MARRIAGE	
			Males	Females
	'000	rate	years	years
1998	110.6	5.9	29.8	27.7
1999	114.3	6.0	29.0	27.9
2000	113.4	5.9	30.3	28.3
2001	103.1	5.3	30.6	28.6
2002	105.4	5.4	31.0	28.9
2003	106.4	5.3	31.2	29.1
2004	111.0	5.5	31.5	29.2
2005	109.3	5.4	31.5	29.3
2006	114.2	5.5	31.6	29.3
2007	116.3	5.5	31.6	29.3
2008	118.8	5.5	31.6	29.3

(a) Marriages per 1,000 population.  
 Source: *Marriages and Divorces, Australia (3310.0)*; *Marriages, Australia (3306.0.55.001)*.

16.0% of couples lived together prior to marriage, while 77.7% of couples lived together prior to marriage in 2008. Widowed males who remarried in 2008 were the least likely to have lived together before marriage and divorced males and females were the most likely. Only 58.2% of widowed males and 64.4% of widowed females who remarried in 2008 lived together before marrying their partner, while the proportion of those divorced who lived together prior to remarriage was 80.8% for males and 81.0% for females.

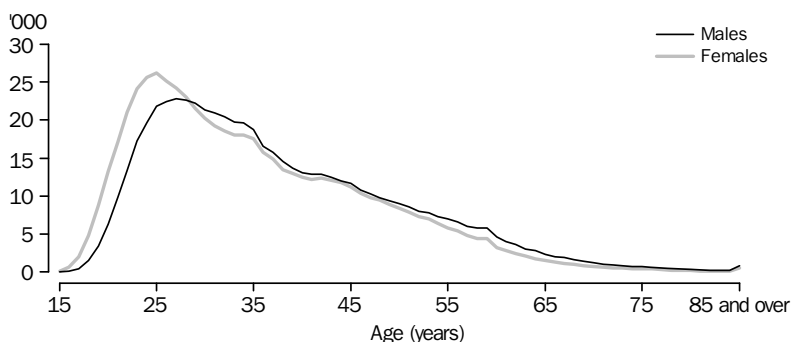
Table 7.37 shows summary measures for marriages between 1998 and 2008.

### De facto relationships

Between 2001 and 2006, the census count of people aged 15 years and over in de facto

relationships rose by 25% from 951,500 to 1,193,400. This was marginally lower than the increase between 1996 and 2001 (28%). In 2006, de facto partners represented 15% of all people living as socially married - that is, all those either in a registered marriage or a de facto relationship - up from 12% in 2001 and 10% in 1996. Total de facto partners in 2006 represented 7% of all persons aged 15 years and over, up from 6% in 2001 and 5% in 1996. These rises may be due to both increases in the number of de facto partners and in the willingness of people to identify themselves as living in de facto relationships. In 2006, the median age of males in de facto relationships was 35.3 years while the median age of females was 33.3 years. Graph 7.38 shows the age distribution of male and female partners in de facto relationships in 2006.

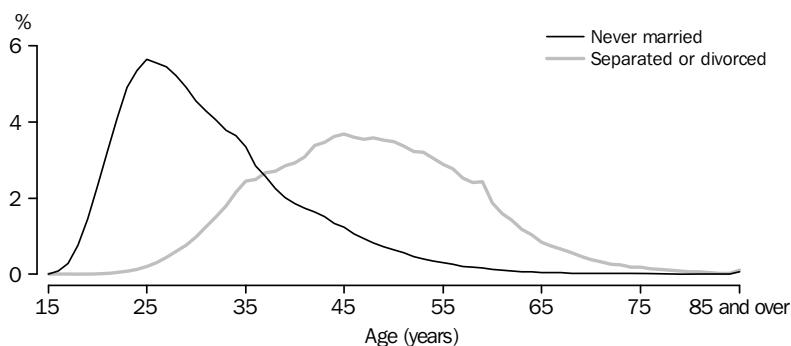
**7.38 DE FACTO PARTNERS(a)—2006**



(a) Opposite-sex couples only.

Source: ABS data available on request, 2006 Census of Population and Housing.

**7.39 PERSONS IN DE FACTO RELATIONSHIPS(a)—2006**



(a) Opposite-sex couples only.

Source: ABS data available on request, 2006 Census of Population and Housing.

De facto partnering has arisen as an alternative living arrangement prior to or instead of marriage, and also following separation, divorce or widowhood. Of all people in de facto relationships in 2006, 70% had never been in a registered marriage and 27% were either separated or divorced. The likelihood of being never married was higher among people aged under 35 years, counterbalanced by higher proportions of separated and divorced de facto partners aged 35 years and over (graph 7.39).

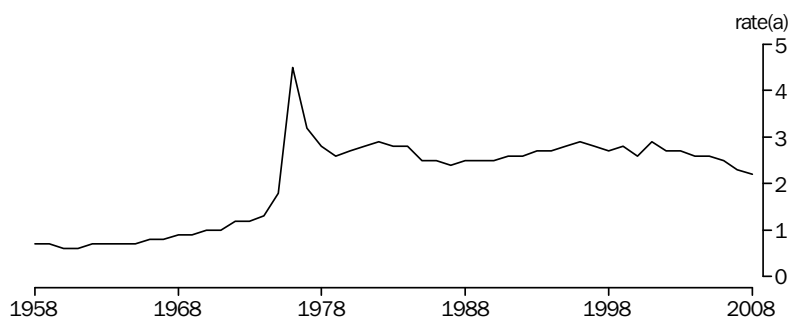
## Divorces

For most of the 20th century, there was a slow but steady rise in the crude divorce rate (the number of divorces in a calendar year per 1,000 population), increasing from 0.1 divorces per 1,000 population for each year between 1901 and 1910 to 0.8 divorces per 1,000 population

between 1961 and 1970. The most important factor involved in the higher divorce rates in the latter quarter of the century was the introduction of the Family Law Act 1975 (Commonwealth) which came into operation on 5 January 1976. This legislation allows only one ground for divorce - irretrievable breakdown of the marriage, measured as the separation of the spouses for at least one year.

Following the implementation of this law, there was a large increase in the divorce rate in 1976. The rate then declined over the next three years as the backlog of applications was cleared. Since then, the crude divorce rate has remained between 2.2 and 2.9 divorces per 1,000 population (graph 7.40). In 2008, the crude divorce rate was 2.2 divorces per 1,000 population.

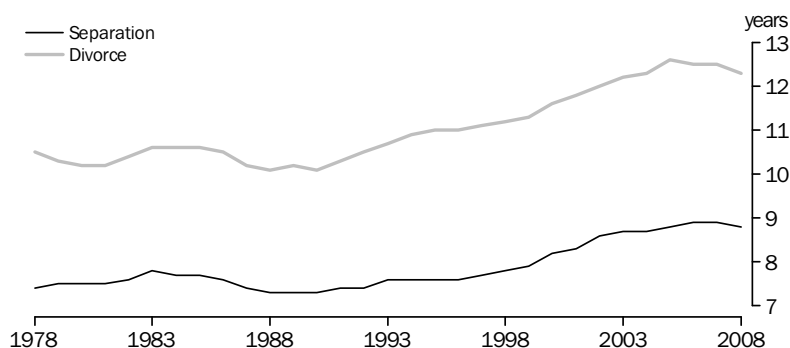
**7.40 CRUDE DIVORCE RATE**



(a) Divorces per 1,000 population.

Source: *Marriages and Divorces, Australia (3310.0); Australian Historical Population Statistics (3105.0.65.001).*

**7.41 MEDIAN DURATION OF MARRIAGE TO SEPARATION AND DIVORCE**



Source: *Marriages and Divorces, Australia (3310.0); Australian Historical Population Statistics (3105.0.65.001).*

## 7.42 SELECTED SUMMARY MEASURES OF DIVORCES

	Divorces granted	Crude divorce rate(a)	MEDIAN AGE AT DIVORCE	
			Males	Females
	'000	rate	years	years
1998	51 370	2.7	40.5	37.8
1999	52 566	2.8	40.9	38.2
2000	49 906	2.6	41.4	38.6
2001	55 330	2.9	41.8	39.1
2002	54 004	2.7	42.2	39.5
2003	53 145	2.7	42.6	39.9
2004	52 747	2.6	43.0	40.3
2005	52 399	2.6	43.5	40.8
2006	51 375	2.5	43.9	41.1
2007	47 963	2.3	44.2	41.3
2008	47 209	2.2	44.1	41.4

(a) Divorces per 1,000 population.

Source: Marriages and Divorces, Australia (3310.0): Divorces, Australia (3307.0.55.001).

The median duration of marriage to both separation and divorce has increased since the late 1980s, revealing that marriages are lasting longer on average (graph 7.41). In 2008, the median duration of marriage to separation was 8.8 years compared with 7.8 years in 1998, while the median duration of marriage to divorce was 12.3 years compared with 11.2 years in 1998. The 2008 rates are slightly lower than the peaks around 2005 or 2006.

In 2008, 6.0% of divorces involved separation within the first year of marriage, 32.7% within the first 5 years and a further 21.7% were separated within 5 to 9 years of marriage. Of divorcing couples in 2008, 16.8% were married less than 5

years, 24.6% between 5 and 9 years and 58.6% were married for 10 years or more. Around 17.2% of divorces occurred to couples who had been married for 25 years or more.

Table 7.42 shows summary measures for divorces in the period 1998 to 2008.

## Households and families

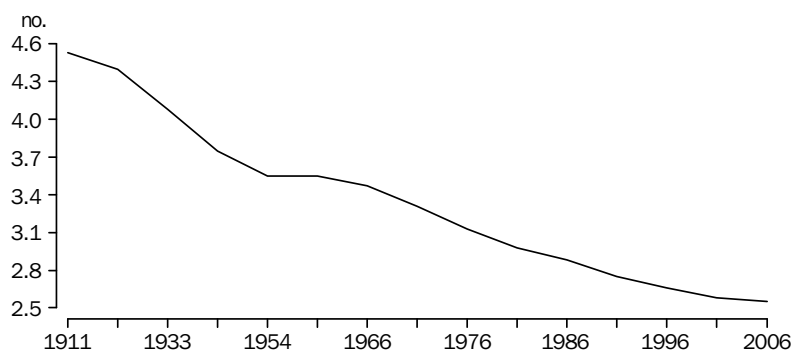
### Households

Australian households have changed considerably in number, size and composition over the last 95 years. During this period, the Census number of private households increased from 894,400 in 1911 to 7.6 million (occupied private dwellings) in 2006, whereas the average number of persons per household declined from 4.5 in 1911 to 2.6 in 2006. Much of this decline can be attributed to reductions in completed family size and the increase in one-person and two-person households (graph 7.43).

Average household size is projected to continue decreasing to 2.3 people per household by 2026. It should be noted that the projected household sizes in graph 7.44 and other household data presented here for the years 2001 to 2026 are based on ABS Household and Family Projections Series II, derived from the 2001 estimated resident population data in conjunction with the 2001 Census data, and therefore differ from the 2006 Census counts of households and families.

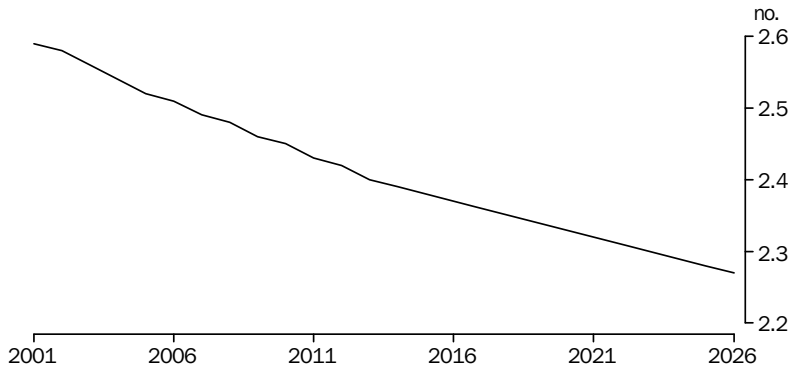
There has been considerable growth in one and two-person households over the last three

## 7.43 AVERAGE HOUSEHOLD SIZE



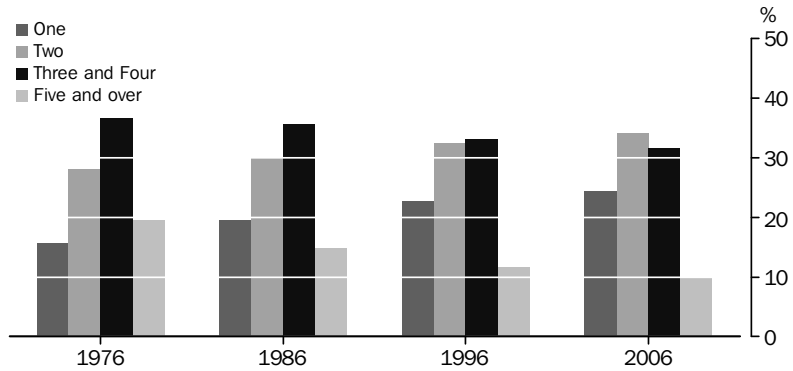
Source: Year Book Australia 1988 (1301.0); Censuses of Population and Housing, 1976–2006.

### 7.44 PROJECTED AVERAGE HOUSEHOLD SIZE



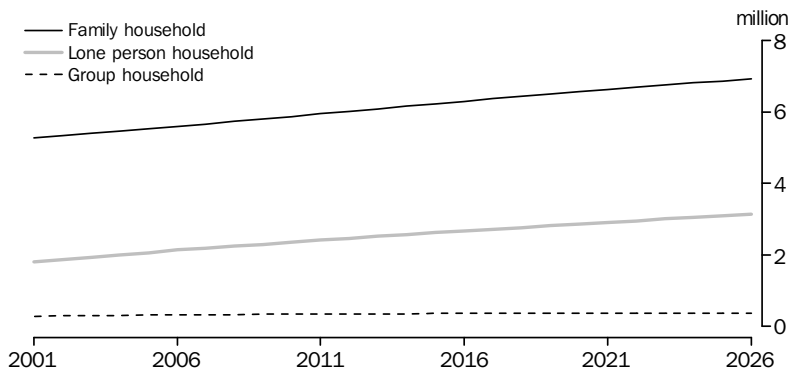
Source: Household and Family Projections, Australia (3236.0).

### 7.45 HOUSEHOLD PROPORTIONS, By number of persons living



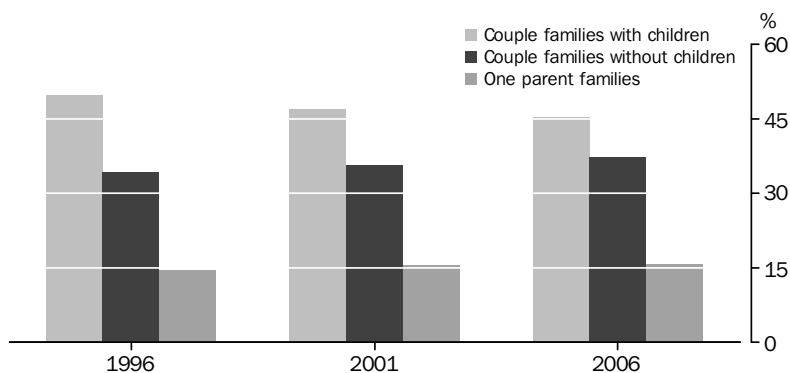
Source: Censuses of Population and Housing, 1976 to 2006.

### 7.46 PROJECTED NUMBER OF HOUSEHOLDS, By household type



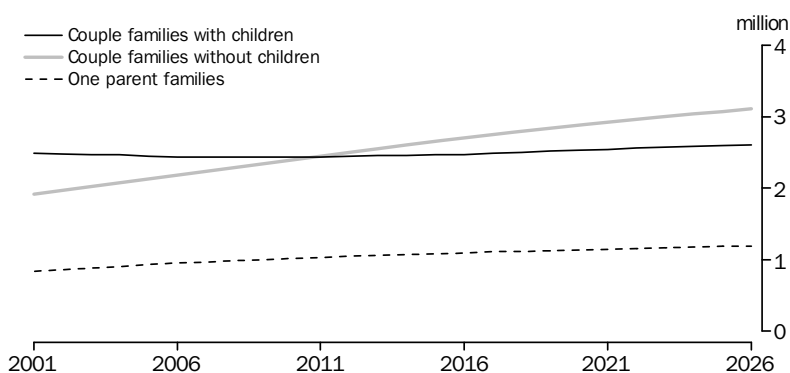
Source: Household and Family Projections, Australia, 2001 to 2026 (3236.0).

### 7.47 FAMILIES, By selected family type



Source: ABS data available on request, 2006 Census of Population and Housing.

### 7.48 PROJECTED FAMILIES, By selected family type



Source: Household and Family Projections, Australia, 2001 to 2026 (3236.0).

decades. The proportion of one-person households increased from 15.7% of households in the 1976 Census to 24.4% in the 2006 Census. The proportion of two-person households also increased from 28.1% of households in 1976 to 34.1% in 2006. The major decline during this period occurred in the number and proportion of households with five or more persons. The number of one-person households has grown largely as a result of population ageing combined with longer life expectancy. Population ageing, increased childlessness among couples and an increase in the number of one parent families also contributed to the increase in the number of two-person households.

Projections show the number of households in Australia will be growing to 10.4 million by 2026 (graph 7.46). Lone person households are

projected to increase to 3.1 million (30.2% of all households) in 2026. This represents the fastest projected increase of all household types over the period 2001 to 2026. The ageing of the population coupled with the longer life expectancy of women over men, increases in separation and divorce, and the delay of marriage are some of the factors contributing to the growth in lone person households.

Family households are projected to remain the most common type of household, increasing from 5.3 million in 2001 to 6.9 million in 2026. However, as a proportion of all households, family households are projected to decrease from 71.5% in 2001 to 66.3% in 2026.

## Families

Between the 2001 and 2006 Censuses, the number of families increased from 4.9 million in 2001 to 5.2 million in 2006. Couples with children continued to be the most common family type over this period. However, as a proportion of all families, couple families with children decreased. In 2001, couple families with children made up 47.0% (2.3 million families) of all families while in 2006, this had decreased to 45.3% (2.4 million families) (graph 7.47). Other family types increased in number between 2001 and 2006. The number of couple families without children increased by 10.2%, from 1.8 million families in 2001 to 1.9 million families in 2006. One parent families also increased, from 762,600 in 2001 to 823,300 in 2006, an increase of 7.9%.

Between 2001 and 2026, the number of couple families with children is projected to increase slowly (graph 7.48). This scenario reflects a gradual trend away from this type of family and is related to increasing numbers of couple families without children and increasing numbers of one parent families.

The number of couple families with children is projected to increase to 2.6 million in 2026 (37.2% of all families). Couple families without children are projected to experience the largest and fastest increases of all family types in Australia. As a result, couple families without children are projected to outnumber couple families with children in 2011. Couple families without children are projected to increase to 3.1 million families in 2026 (44.3% of all families). One parent families are projected to increase to 1.2 million in 2026.



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# Characteristics of the population

*This article examines characteristics of the Australian population including languages spoken, religious affiliations, the uptake of citizenship by migrants as well as ancestry.*

## Language

Although English is Australia's national language, the cultural diversity within the population has resulted in almost 400 languages being spoken in the community. Just over half of these are languages other than English spoken by migrants who have settled in Australia from all over the world. The remaining languages are Australian Indigenous languages, the majority spoken by Aboriginal and Torres Strait Islander Australians. The 2006 Census of Population and Housing found that in August 2006, 3.1 million people (16% of the population) spoke a language other than English at home (table S7.1), an increase of 285,000 people since 2001.

Over 55,000 people spoke an Australian Indigenous language (including Australian Creoles) at home in 2006, of whom almost 52,000 were Aboriginal and/or Torres Strait Islander Australians. In 2006, the two most commonly spoken Indigenous languages were Torres Strait Creole and Kriol (an Australian Creole). Over half (56%) of all Indigenous language speakers live in the Northern Territory where 59% of the Indigenous population speak an Australian Indigenous language. For more discussion on Indigenous languages, see the feature article titled *Languages of Aboriginal and Torres Strait Islander peoples – a uniquely Australian heritage* in this edition of Year Book Australia.

### S7.1 PERSONS WHO SPEAK A LANGUAGE OTHER THAN ENGLISH AT HOME, BY LANGUAGE SPOKEN, 2006

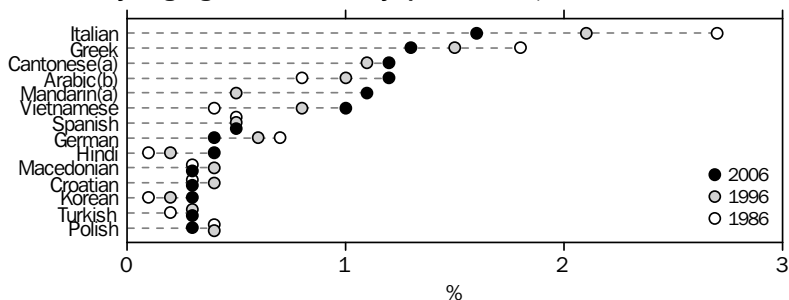
			Proportion Persons as a born in proportion of		
	Males	Females	Persons	Australia (a)	population
	'000	'000	'000	%	%
Italian	154.0	162.9	316.9	42.1	1.6
Greek	124.3	128.0	252.2	52.8	1.3
Cantonese	115.7	128.8	244.6	21.4	1.2
Arabic	125.0	118.7	243.7	42.9	1.2
Mandarin	103.3	117.3	220.6	12.6	1.1
Vietnamese	94.3	100.5	194.9	30.3	1.0
Spanish	46.6	51.4	98.0	24.4	0.5
Tagalog (Filipino)	36.3	56.1	92.3	15.0	0.5
German	34.7	40.9	75.6	19.9	0.4
Hindi	36.4	33.6	70.0	13.7	0.4
Macedonian	34.0	33.8	67.8	40.1	0.3
Croatian	31.3	32.3	63.6	34.1	0.3
Australian Indigenous languages	27.1	28.6	55.7	96.4	0.3
Turkish	27.1	26.8	53.9	42.3	0.3
Polish	23.8	29.6	53.4	21.1	0.3
Serbian	26.2	26.4	52.5	24.4	0.3
Maltese	17.8	18.7	36.5	26.5	0.2
Netherlandic	16.2	19.9	36.2	14.4	0.2
All other languages(b)	424.8	448.2	873.1	18.5	4.4
<b>Total</b>	<b>1 499.0</b>	<b>1 602.5</b>	<b>3 101.5</b>	<b>28.8</b>	<b>15.6</b>

(a) Persons whose birthplace was not stated, inadequately described, n.e.c. or at sea were excluded prior to the calculation of percentages.

(b) Excludes languages that were not stated, inadequately described, and non-verbal so described.

Source: ABS data available on request, 2006 Census of Population and Housing.

**S7.2 PERSONS WHO SPEAK A LANGUAGE OTHER THAN ENGLISH AT HOME,  
By languages most commonly spoken—1986, 1996 and 2006**



(a) Cantonese and Mandarin were combined under 'Chinese languages' in 1986.

(b) Arabic included Lebanese in 1986 and 1996.

Source: ABS data available on request, Census of Population and Housing 1986, 1996 and 2006.

In 2006, 29% of all people who spoke a language other than English at home were born in Australia. Greek (53%), Turkish (42%) and Italian (42%) were among those that had the largest proportions of Australian-born speakers, reflecting the fact that although these languages were mainly brought to Australia more than 20 years ago, they continue to be maintained among the children of those migrants. Arabic also has a high proportion of speakers born in Australia (43%). Languages spoken by migrants arriving in Australia more recently, such as Mandarin, Hindi and Filipino

had small proportions of Australian-born speakers.

In 2006, Italian, Greek, Cantonese, Arabic, Mandarin and Vietnamese were the six most commonly spoken (non-English) languages in Australia in terms of numbers, however the proportion of the population speaking these languages has changed over time. In 2006, there were comparatively fewer people speaking Italian or Greek than there were twenty years ago when Italian, the most

**S7.3 PERSONS WHO SPEAK A LANGUAGE OTHER THAN ENGLISH AT HOME,  
By English proficiency, 2006**

Language spoken at home	TOTAL	PROFICIENT IN SPOKEN ENGLISH (a)		NOT PROFICIENT IN SPOKEN ENGLISH (b)	
		'000	%	'000	%
Northern European languages	152.5	147.1	96.5	5.4	3.5
Southern European languages	763.2	646.4	84.7	116.8	15.3
Eastern European languages	368.4	308.8	83.8	59.6	16.2
Southwest Asian and North African languages	377.5	309.0	81.9	68.5	18.1
Southern Asian languages	244.8	229.4	93.7	15.4	6.3
Southeast Asian languages	409.2	314.6	76.9	94.6	23.1
Eastern Asian languages	585.2	436.8	74.6	148.4	25.4
Australian Indigenous languages	54.4	43.7	80.3	10.7	19.7
Other languages	104.9	89.9	85.7	15.0	14.3
<b>Total(c)</b>	<b>3 060.1</b>	<b>2 525.8</b>	<b>82.5</b>	<b>534.3</b>	<b>17.5</b>

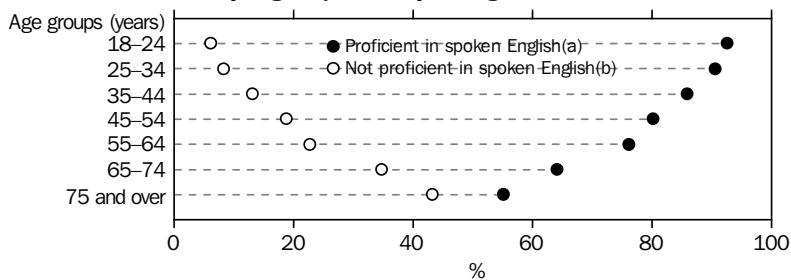
(a) Includes English spoken very well and English spoken well.

(b) Includes English spoken not well and English not spoken.

(c) Excludes non-verbal, not stated, inadequately described and not elsewhere classified.

Source: ABS data available on request, 2006 Census of Population and Housing.

**S7.4 PERSONS WHO SPEAK A LANGUAGE OTHER THAN ENGLISH AT HOME,  
By English proficiency and age—2006**



(a) Includes English spoken very well and English spoken well.  
(b) Includes English spoken not well and English not spoken.

Source: ABS data available on request, 2006 Census of Population and Housing.

commonly spoken (non-English) language, was spoken by nearly 3% of the population, followed by Greek spoken by nearly 2%. In contrast, the proportion speaking Mandarin and Vietnamese has more than doubled over this time (graph S7.2).

English proficiency among people who spoke a language other than English at home was highest among those speaking Northern European languages (notably German, Scandinavian and Netherlandic) and lowest among those speaking Eastern Asian languages (Chinese, Japanese and Korean) (table S7.3). Nearly 97% of Northern European language speakers spoke English either well or very well, compared with 75% of Eastern Asian language speakers.

English proficiency among people who spoke a language other than English at home varied with the age and sex of the speaker. Around 84% of all people aged under 25 years who spoke a language other than English at home spoke English well or very well, compared with 60% of those aged 65 years and over (graph S7.4).

Around 82% of males and 80% of females who spoke a language other than English at home spoke English well or very well, while slightly more females than males either did not speak English well or at all.

## Religion

Although a precise definition of the concept of religion is difficult, a religion is generally regarded as a set of beliefs and practices usually involving acknowledgment of a divine or higher being or power, by which people order the conduct of their lives both practically and in a moral sense.

At the time of European settlement, the Aboriginal inhabitants followed their own religions involving beliefs in spirits behind the forces of nature, and the influence of ancestral spirit beings.

During the 1800s, European settlers brought their traditional churches to Australia. These included the Church of England (now the Anglican Church), the Methodist, Catholic, Presbyterian, Congregationalist, Lutheran and Baptist churches.

With the exception of a small but significant Lutheran population of Germanic descent, Australian society in 1901 was predominantly Anglo-Celtic, with 40% of the population being Anglican, 23% Catholic, 34% other Christian and about 1% professing non-Christian religions.

Further waves of migration helped to reshape the profile of Australia's religious affiliations over subsequent decades. The impact of migration from Europe in the aftermath of World War II led to increases in affiliates of the

### S7.5 RELIGIOUS AFFILIATION(a), 1986, 1996 and 2006

	1986		1996		2006	
	'000	%	'000	%	'000	%
<b>Christian</b>						
Anglican	3 723.4	23.9	3 903.3	22.0	3 718.3	18.7
Baptist	196.8	1.3	295.2	1.7	316.7	1.6
Catholic	4 064.4	26.1	4 799.0	27.0	5 126.9	25.8
Churches of Christ	88.5	0.6	75.0	0.4	54.8	0.3
Jehovah's Witnesses	66.5	0.4	83.4	0.5	80.9	0.4
Latter Day Saints	35.5	0.2	45.2	0.3	53.1	0.3
Lutheran	208.3	1.3	250.0	1.4	251.1	1.3
Eastern Orthodox	427.4	2.7	497.3	2.8	544.3	2.7
Pentecostal	107.0	0.7	174.6	1.0	219.6	1.1
Presbyterian and Reformed Churches	560.0	3.6	675.5	3.8	596.7	3.0
Salvation Army	77.8	0.5	74.1	0.4	64.2	0.3
Seventh Day Adventist	48.0	0.3	52.7	0.3	55.3	0.3
Uniting Church	1 182.3	7.6	1 334.9	7.5	1 135.4	5.7
Other Christian	596.0	3.8	322.7	1.8	468.6	2.4
<b>Christian total</b>	<b>11 381.9</b>	<b>73.0</b>	<b>12 582.9</b>	<b>70.9</b>	<b>12 685.9</b>	<b>63.9</b>
<b>Non-Christian</b>						
Buddhism	80.4	0.5	199.8	1.1	418.8	2.1
Hinduism	21.5	0.1	67.3	0.4	148.1	0.7
Islam	109.5	0.7	200.9	1.1	340.4	1.7
Judaism	69.1	0.4	79.8	0.4	88.8	0.4
Other non-Christian	35.7	0.2	68.6	0.4	109.0	0.5
<b>Non-Christian total</b>	<b>316.2</b>	<b>2.0</b>	<b>616.4</b>	<b>3.5</b>	<b>1 105.1</b>	<b>5.6</b>
<b>Other</b>						
No religion	1 977.5	12.7	2 948.9	16.6	3 706.5	18.7
Not stated/Inadequately described	1 926.6	12.3	1 604.8	9.0	2 357.8	11.9
<b>Total</b>	<b>15 602.1</b>	<b>100.0</b>	<b>17 753.0</b>	<b>100.0</b>	<b>19 855.3</b>	<b>100.0</b>

(a) Religious affiliation is coded to the Australian Standard Classification of Religious Groups, Second Edition.  
Source: ABS data available on request, Census of Population and Housing 1986, 1996 and 2006.

Orthodox Churches, the establishment of Reformed bodies, growth in the number of Catholics (largely from Italian migration), and the creation of ethnic parishes among many other denominations. More recently, immigration from south-east Asia and the Middle East has expanded Buddhist and Islamic numbers, and increased the ethnic diversity of existing Christian denominations.

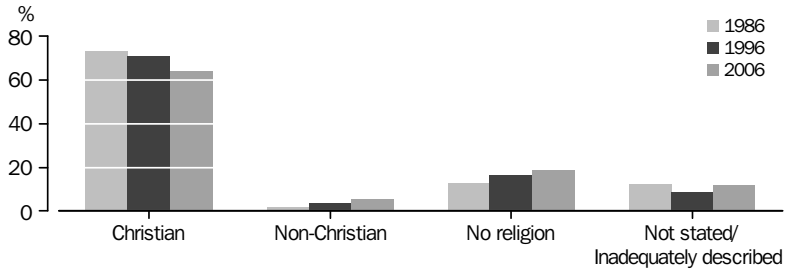
In response to the 2006 Census question, stated religious affiliations were: 26% Catholic; 19% Anglican; 19% all other Christian denominations; and 6% non-Christian religions. Almost 31% of all persons either stated they had no religion, or did not adequately respond to the question to enable classification of their religion.

Table S7.5 shows the number and percentage of affiliates of each religion at the time of the 1986, 1996 and 2006 Censuses. Since 1986, the

number of people professing affiliation with the Christian denominations grew from around 11.4 million to 12.7 million, a growth rate of 12%. Those affiliated with non-Christian faiths increased from around 0.3 million to 1.1 million people, an increase of almost 250%. In contrast, the total population grew by 27% over the same period.

The most common Christian denominations continued to be Catholic and Anglican. Since 1986, the number of Australians affiliated with the Catholic church grew by 26% to 5.1 million, while those affiliated with the Anglican faith remained steady at just over 3.7 million. The fastest growing Christian denomination was Pentecostal, recording an increase of 105%. Christian denominations which recorded a decline in reported affiliations over the twenty-year period were Churches of Christ (by 38%) and The Salvation Army (by 17%).

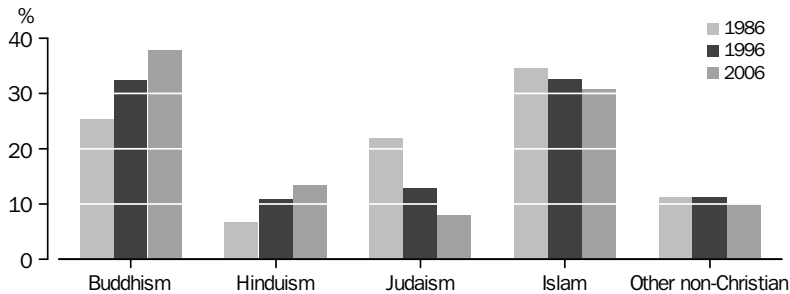
**S7.6 RELIGIOUS AFFILIATION(a),  
By proportion of total population—1986, 1996 and 2006**



(a) Religious affiliation is coded to the Australian Standard Classification of Religious Groups, Second Edition.

Source: ABS data available on request, *Census of Population and Housing 1986, 1996, 2006*.

**S7.7 NON-CHRISTIAN RELIGIOUS AFFILIATION(a),  
By proportion of non-Christian religions—1986, 1996 and 2006**



(a) Religious affiliation is coded to the Australian Standard Classification of Religious Groups, Second Edition.

Source: ABS data available on request, *Census of Population and Housing 1986, 1996, 2006*.

Australia's three most common non-Christian religious affiliations were Buddhism (2% of all persons), Islam (2%) and Hinduism (1%). Of these groups, Hinduism experienced the fastest proportional growth since 1986, more than doubling each decade to over 148,100, followed by Buddhism which doubled each decade to almost 418,800 affiliates.

Whilst Christianity remained the dominant religion in Australia over the twenty-year period, Christian denominations generally had smaller proportional changes in the numbers of affiliates than the non-Christian religions. The proportion of Christians in the total population fell from 73% in 1986 to 64% in 2006, while in the same period non-Christian religions, increased from 2% of the total population in 1986 to 6% in 2006. The number of Australian

residents who have stated no religion increased from 13% in 1986 to 19% in 2006 (graph S7.6).

Since 1986, non-Christian religions have grown at very high rates and collectively account for 6% of the total population in 2006 (1.1 million people). Over the twenty-year period, Buddhism experienced large rates of growth and in 2006 represented the largest group of non-Christian religions, overtaking affiliation with Islam which was the largest group in both 1986 and 1996 Censuses (graph S7.7). Notably, Hinduism affiliation experienced the largest rate of growth (from a small base) of all religions (590%) between 1986 and 2006 (table S7.5).

**S7.8 RELIGIOUS AFFILIATION(a), Overseas born people(b)—By year of arrival**

Religious affiliation	YEAR OF ARRIVAL (c)			
	Arrived 2002 to 2006		Arrived prior to 2002	
	'000	%	'000	%
Christianity	299.1	46.1	2 269.8	63.9
No Religion(d)	144.8	22.3	581.8	16.4
Islam	53.2	8.2	135.9	3.8
Buddhism	51.8	8.0	222.0	6.2
Hinduism	46.9	7.2	70.3	2.0
Religion not stated	32.3	5.0	183.1	5.2
Other Religions	12.5	1.9	33.8	1.0
Judaism	4.5	0.7	37.9	1.1
<b>Total persons</b>	<b>649.4</b>	<b>100.0</b>	<b>3 554.4</b>	<b>100.0</b>

- (a) Religious affiliation is coded to the Australian Standard Classification of Religious Groups, Second Edition.
- (b) Excludes inadequately described, at sea, not elsewhere classified and not stated.
- (c) Excludes persons where year of arrival was not stated.
- (d) Comprises 'No Religion nfd', 'Agnosticism', 'Atheism', 'Humanism' and 'Rationalism'.

Source: ABS data available on request, 2006 Census of Population and Housing.

Growth in the numbers and proportions of persons affiliating with Buddhism, Islam and Hinduism are largely due to recent migration. Table S7.8 shows the religious affiliation for those born overseas and year of arrival into Australia as reported in the 2006 Census. In the five years from 2002 to 2006, there were almost 650,000 new arrivals to Australia and whilst the most common religious affiliation of migrants is Christianity, affiliates of other religions are more highly represented amongst recent

migrants than those arriving prior to 2002 and compared to the total population.

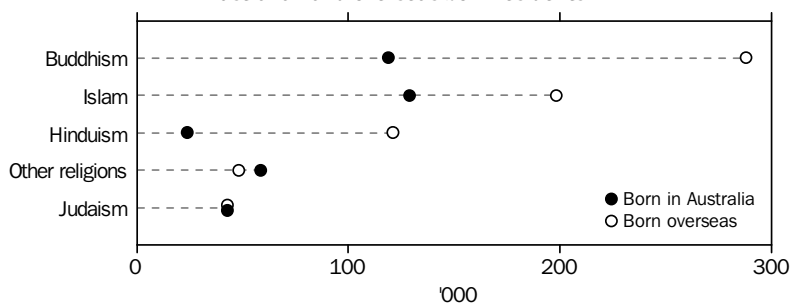
With the exception of Judaism, the majority of people who reported non-Christian religions in 2006 were born overseas. Hinduism (82% born overseas), Buddhism (69%) and Islam (58%) (some actual numbers are in graph S7.9). With respect to the main countries of birth of affiliates, 44% of all people affiliating with Hinduism were born in India, for Buddhism 22% were born in Vietnam and 9% in China, and for Islam almost 9% were born in Lebanon and 7% in Turkey.

In 2006, 80% of persons aged 65 years and over identified themselves as Christian, compared with 55% of 18–24 year olds. In contrast, the other religions have a younger age profile. For example, 17% of all Christian affiliates were aged 65 years and over, compared with 6% of Buddhist affiliates; and 8% of Christian affiliates were aged between 18 and 24 years, compared with 12% of Buddhist affiliates. The largest group of adult Buddhist affiliates was 35–44 year olds. Similar trends were evident for Hindu and Islam affiliates.

**Citizenship**

Australian citizenship did not exist before 1949. Until then, Australians could only hold the status of British subjects. With the introduction of the Nationality and Citizenship Act 1948, people born in Australia – on or after 26 January 1949 and before 20 August 1986 – became Australian citizens by birth. Since 1986,

**S7.9 NON-CHRISTIAN RELIGIOUS AFFILIATION(a), Australian and overseas born residents**



(a) Religious affiliation is coded to the Australian Standard Classification of Religious Groups, Second Edition.

Source: ABS data available on request, 2006 Census of Population and Housing.

people born in Australia become Australian citizens automatically if at least one parent is an Australian citizen or a permanent resident of Australia. For more information see the Department of Immigration and Citizenship's website <http://www.immi.gov.au/>.

Although Australian citizenship is voluntary for people born overseas, all eligible migrants are encouraged to apply. Citizenship provides the opportunity to participate fully in Australian life, giving the right to vote, to apply for public office, to hold an Australian passport and to leave and re-enter Australia freely. During the citizenship ceremony, people are asked to pledge loyalty to Australia and its people, to share their democratic beliefs, to respect their rights and liberties and to uphold and obey Australia's laws.

Legislative changes in 2002 have made it possible for Australian citizens to hold dual citizenship, when previously this would have meant forfeiting their Australian citizenship when taking up another country's citizenship.

On 1 July 2007 the Australian Citizenship Act 2007 came into effect, introducing changes to terminology (e.g. 'grant of citizenship' has become 'citizenship by conferral') and extending the residence requirement from two years permanent residence to four years lawful residence, including the last 12 months as a permanent resident. From October 2007, further changes were introduced, requiring most applicants to pass a test before they apply for Australian citizenship. Applicants are required to have a basic knowledge of English

and know something of Australia's history, heritage and culture.

Since 1945, over 6.5 million people have migrated to Australia, with more than 4 million people becoming Australian citizens since 1949. The longer overseas-born people reside in Australia, the more likely it is that they have acquired Australian citizenship. For example, there is a high proportion of Australian citizens among people born in Greece, reflecting past immigration policies which sourced migrants from countries such as Greece at the end of World War II (graph S7.10).

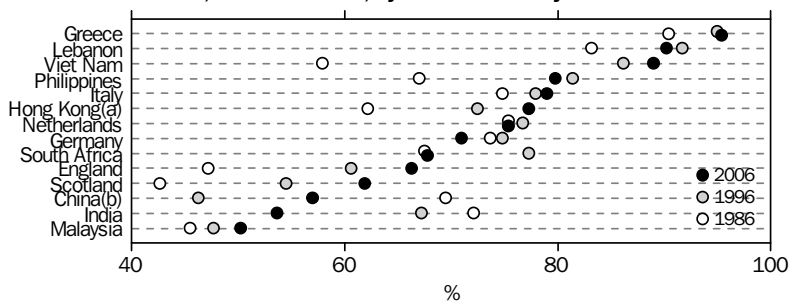
Former British, Irish and New Zealand citizens have been among the largest sources of Australian citizens since the early 1970s, when legislative changes and visa requirements prompted many Commonwealth citizens living in Australia to apply for Australian citizenship. In more recent times, arrivals from India and China have overtaken Ireland and New Zealand as sources of Australian citizens.

Table S7.11 shows that nearly 87,000 people from over 180 countries were conferred with Australian citizenship at ceremonies in 2008-09.

## Ancestry

The ancestry classification used by the ABS recognises the self-defined and self-reported ancestries of all Australians and includes ancestries which refer to nations, to groups within nations, and to groups or regions which cross national boundaries. Yet ancestry is a

**S7.10 PROPORTIONS OF THE POPULATION WITH AUSTRALIAN CITIZENSHIP, 1986, 1996 AND 2006, by selected country of birth**



(a) SAR of China.  
(b) Excludes SARs and Taiwan.

Source: ABS data available on request, *Census of Population and Housing 1986, 1996, 2006*.



**S7.11 PEOPLE CONFERRED (a), WITH AUSTRALIAN CITIZENSHIP in 2008–09, By previous nationality or citizenship**

<i>Previous country of nationality or citizenship</i>	no.	%
United Kingdom	18 510.0	21.3
India	9 088.0	10.4
China(b)	6 697.0	7.7
South Africa	4 128.0	4.7
New Zealand	3 744.0	4.3
Philippines	3 450.0	4.0
Sri Lanka	2 196.0	2.5
Iraq	2 148.0	2.5
Malaysia	1 771.0	2.0
Bangladesh	1 755.0	2.0
Afghanistan	1 729.0	2.0
Vietnam	1 519.0	1.7
Sudan	1 430.0	1.6
United States of America	1 411.0	1.6
Korea, Republic of (South)	1 211.0	1.4
Pakistan	1 186.0	1.4
Singapore	1 098.0	1.3
Hong Kong(c)	1 036.0	1.2
Fiji	973.0	1.1
Indonesia	935.0	1.1
Ireland	903.0	1.0
Thailand	871.0	1.0
Zimbabwe	803.0	0.9
Taiwan	760.0	0.9
Germany	736.0	0.8
Lebanon	682.0	0.8
Russian Federation	642.0	0.7
Egypt	523.0	0.6
Italy	488.0	0.6
Other/not stated	14 558.0	16.7
<b>Total</b>	<b>86 981.0</b>	<b>100.0</b>

(a) People conferred Australian citizenship at ceremonies.

(b) Excludes SARs and Taiwan

(c) SAR of China

Source: Department of Immigration and Citizenship, Annual Report, 2008–09.

complex concept. A person's ancestry is shaped by country of birth and citizenship along with the more intangible concepts of language and religion. Moreover, the concept of ancestry is further complicated because a person may report more than one ancestry in answer to the Census question, and the question is open to their individual interpretation.

While ancestry has similarities with ethnic identity, the former has a more historical orientation. Respondents to the 2006 Census were asked to provide up to two ancestries only, while for the 2001 Census respondents

were asked to consider their ancestry as far back as three generations. The 1986 Census was the only other Census to include questions about ancestry, but respondents were asked to consider their ancestry only as far back as two generations.

Ancestry changes are consistent with immigration trends over the period but some other changes can be attributed to changing perceptions of ancestry as well as differences in Census question design.

In 2006, more than 270 ancestries were separately identified by Australia's population. The most commonly stated ancestries were Australian with 7.4 million (37%) choosing this as at least one of their ancestries and English (6.3 million or 32%). Other main ancestries included Irish (9%), Scottish (8%), Italian (4%), German (4%), and Chinese (3%) (table S7.12).

When both parents were born overseas, the most commonly reported ancestries were English (25% of persons for this group), Chinese (10%), Italian (7%), Scottish (6%) and Irish (4%).

If both parents were born in Australia, the response rate for 'Australian' ancestry increased to 57% (percentage of persons for this group). Other reported ancestries for persons with both parents born in Australia were English (36%), Irish (13%), Scottish (9%), German (5%) and Italian (2%).

Around 64% of Australian residents identified with only one ancestry, while 28% selected two ancestries in 2006. For those who reported Australian ancestry, the second ancestries reported were mainly English (17% of the total Australian ancestry group), Scottish (4%) and Irish (3%). Some ancestries were more likely than others to be part of a two-ancestry response. People reporting Thai (99%) or Irish ancestries (76%) were the most likely to also report another ancestry, while people who reported Korean (1%), Vietnamese (1%), or Bengali (2%) were the least likely to report another ancestry.

With regard to 'Australian' ancestry responses, people born in Australia accounted for 96% of the 7.4 million responses. However, of the remaining Australian ancestry responses (that is, of those born overseas), 10% were recorded

by people born in England, 9% by New Zealand-born and 3% by people born in the United States of America (graph S7.13).

#### S7.12 SELF-REPORTED ANCESTRY, By country of birth of parents – 2006

	<i>Both parents born overseas</i>	<i>One parent born overseas</i>	<i>Both parents born in Australia</i>	<i>Total responses as Total proportion of Responses(a) total persons</i>	<i>Total responses as Total proportion of Responses(a) total persons</i>
	'000	'000	'000	'000	%
<b>Oceanian</b>					
Australian	138.3	1 205.6	5 846.7	7 371.8	37.1
Australian Aboriginal	1.0	3.7	107.0	115.3	0.6
Other Australian Peoples(b)	0.7	1.3	15.3	17.9	0.1
New Zealander	97.8	50.6	8.6	160.7	0.8
Maori	68.8	15.6	4.7	92.9	0.5
Other Oceanian	87.3	18.1	7.0	117.7	0.6
<b>North-West European</b>					
English	1 470.2	974.7	3 683.0	6 283.7	31.6
Irish	263.6	193.9	1 308.4	1 803.7	9.1
Scottish	333.3	228.9	911.2	1 501.2	7.6
German	201.3	101.3	493.1	811.5	4.1
Dutch	161.2	78.4	65.4	310.1	1.6
Other North-West European(b)	193.8	74.7	148.3	424.2	2.1
<b>Southern and Eastern European</b>					
Italian	435.3	141.7	255.2	852.4	4.3
Greek	235.1	49.9	71.2	365.1	1.8
Polish	109.3	24.6	27.1	163.8	0.8
Other Southern and Eastern European(b)	647.1	127.1	118.5	912.2	4.6
<b>North African and Middle Eastern</b>					
Lebanese	134.3	24.3	16.2	181.7	0.9
Turkish	50.5	5.4	1.4	59.4	0.3
Other North African and Middle Eastern(b)	165.0	13.0	5.6	189.9	1.0
<b>South-East Asian</b>					
Vietnamese	162.6	3.7	1.1	173.7	0.9
Filipino	135.7	17.9	1.6	160.4	0.8
Other South-East Asian(b)	132.9	16.8	4.3	158.0	0.8
<b>North-East Asian</b>					
Chinese	595.0	28.2	32.7	669.9	3.4
Other North-East Asian(b)	96.6	7.5	2.5	109.0	0.5
<b>Southern and Central Asian</b>					
Indian	212.0	13.1	4.8	234.7	1.2
Other Southern and Central Asian(b)	171.8	10.9	3.6	190.9	1.0
<b>People of the Americas</b>	121.5	45.5	11.7	182.7	0.9
<b>Sub-Saharan African</b>					
South African	65.6	10.5	2.3	79.5	0.4
Other Sub-Saharan African(b)	58.1	7.4	1.9	69.9	0.4
<b>Total Persons(c)</b>	<b>5 868.7</b>	<b>2 179.5</b>	<b>10 282.3</b>	<b>19 855.3</b>	<b>100.0</b>

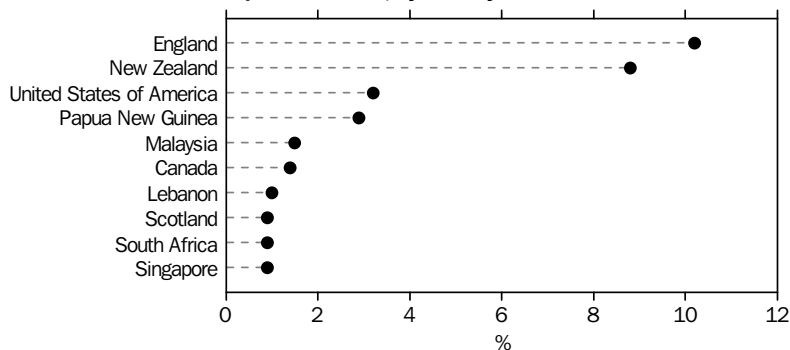
(a) This table is a multi-response table, and therefore the total responses count will not necessarily equal the total persons count.

(b) If two responses from one person are categorised in the 'Other' category only one response is counted.

(c) Components may not add to totals because people may report more than one ancestry.

Source: ABS data available on request, Census of population and Housing.

**S7.13 OVERSEAS BORN PERSONS REPORTING AUSTRALIAN ANCESTRY IN 2006, Top 10 Countries, by country of birth**



Source: ABS data available on request, 2006 Census of Population and Housing.

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# 8

## LABOUR

The information contained in this chapter presents a picture of the labour market in Australia. Unlike other statistics that have a particular economic or social focus, labour statistics cut across both dimensions, and in so doing they provide useful insights into economic and community life in Australia.

This chapter provides a broad overview of the Australian labour market. It briefly describes key labour statistics concepts and measures (e.g. employment, unemployment and labour underutilisation, hours worked, job vacancies, earnings, industrial disputes); highlights the main features of the Australian labour market in 2008–09; examines developments in the Australian labour market over the medium and long-term; and presents more detailed analysis of a number of issues impacting on the Australian labour market.

The chapter contains two articles – *Independent Contractors* and *Interstate Commuters*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Labour market statistics

Most labour market statistics focus on some aspect of labour demand or labour supply. In Australia, surveys of businesses conducted by the Australian Bureau of Statistics (ABS) are the primary source of data on labour demand. The types of data collected through business surveys include labour costs, earnings and job vacancies. The ABS population census and household surveys provide extensive information about the size and characteristics of labour supply; the major source is the monthly Labour Force Survey (LFS) and the on-going program of supplementary surveys. Information obtained through these types of collections include data on labour force status, employment characteristics as well as demographic characteristics, such as age. Diagram 8.1 illustrates how labour statistics from ABS

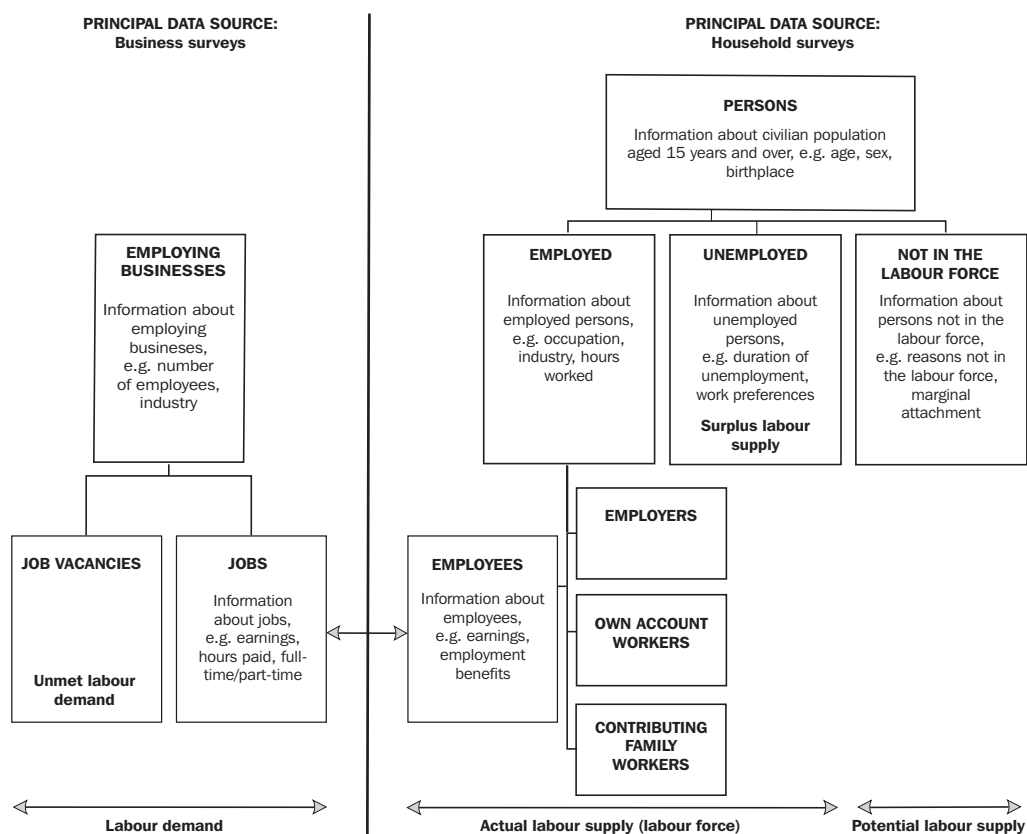
household and business surveys relate to the labour market.

The concepts and definitions underlying Australian labour statistics are based on the conventions, recommendations and guidelines developed and maintained by the International Labour Organisation and the United Nations Statistical Office. Australian labour statistics comply in almost every respect with these international standards.

## Labour force

The labour force represents the key official measure of the total supply of labour available to the labour market during a given short reference period. It represents the labour available for the production of economic goods and services.

### 8.1 AUSTRALIAN LABOUR STATISTICS FRAMEWORK



Source: *Labour Statistics: Concepts, Sources and Methods (6102.0.55.001)*.

Therefore, people in the labour force are also referred to as the 'currently economically active population'.

The Australian labour force framework classifies people into three mutually exclusive categories: employed; unemployed; and not in the labour force. The employed and unemployed categories together make up the labour force, which gives a measure of the number of people contributing to the used or unused supply of available labour. The third category (not in the labour force) represents the currently economically inactive population. This framework is illustrated in diagram 8.2. Further details about the Australian labour force framework, and the specific criteria for classifying people to these three basic categories, are available in *Labour Statistics: Concepts, Sources and Methods* (6102.0.55.001).

For the purpose of compiling Australian labour force statistics, the population is restricted to people in the civilian population aged 15 years and over. This practice is consistent with

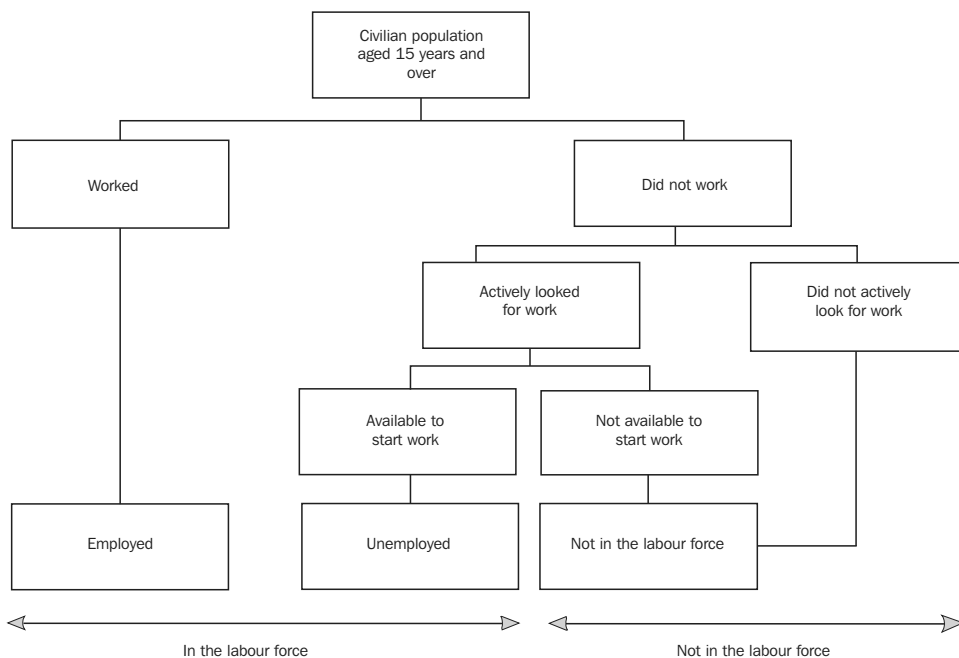
international guidelines for the collection of labour statistics.

### Characteristics of the labour force

The size and composition of the labour force are constantly changing. Changes in the size of the labour force are caused by changes in labour force participation as well as changes in the size and composition of the adult population. Between June 2008 and June 2009 the labour force grew by 1.5%. During the same period the civilian population aged 15 years and over grew by 1.8%. The difference between these two growth rates reflects a decrease in the labour force participation rate over this period.

The labour force participation rate is one of the most important indicators for analysing the overall level of labour market activity. The participation rate is calculated by dividing the total number of people in the labour force by the total number of people in the civilian population aged 15 years and over. Analysis of participation rates, particularly by age, sex and family type,

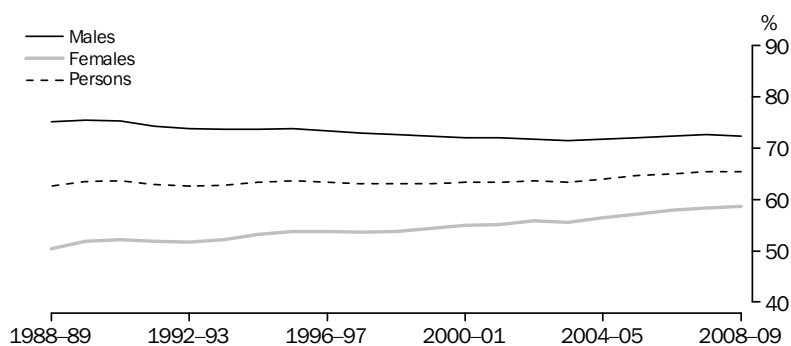
### 8.2 AUSTRALIAN LABOUR FORCE FRAMEWORK(a)



(a) This diagram provides a simple overview. The detailed rules for determining whether a person is classified as employed, unemployed or not in the labour force are outlined in 'Labour Statistics: Concepts, Sources and Methods' (6102.0.55.001).

Source: *Labour Statistics: Concepts, Sources and Methods* (6102.0.55.001).

### 8.3 LABOUR FORCE PARTICIPATION RATES(a)



(a) Annual averages.

Source: *Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001)*.

provides the basis for monitoring changes in the size and composition of the labour supply.

During the last two decades the overall labour force participation rate has increased slowly, rising from 62.6% in 1988–89 to 65.4% in 2008–09. This long-term rise in the labour force participation rate has been driven by an increase in the female participation rate. The female participation rate increased from 50.4% in 1988–89 to 58.7% in 2008–09. In contrast, the male participation rate decreased from 75.2% to 72.3% over the same period. Graph 8.3 provides male and female participation rates between 1988–89 and 2008–09, and shows the convergence of male and female participation rates over this period.

Underlying these trends in male and female participation rates are varying movements in the age-specific participation rates. As shown in table 8.4, male and female participation rates were similar in the 15–19 year age group. Participation rates for men and women rose as young people moved from education and training to employment. For men, participation rates peaked in the 25–34 and 35–44 year age groups, while female participation rates peaked in the 45–54 year age group.

A comparison of age-specific participation rates for women shows that labour force participation rates have increased for all age groups except the 15–19 and 20–24 year age groups. While over the last 20 years there has been a considerable increase in the labour force participation of women in their peak child-bearing years (the

25–34 year age group), the largest gains have been in the participation of older women. During the last two decades, the participation rate of women aged 55–64 years increased by 28.1 percentage points and for women aged 45–54 years by 19.6 percentage points.

Participation rates for men declined between 1988–89 and 2008–09 for almost all age groups. The exceptions were for men aged 55–64 years (61.7% to 68.6%) and men aged 65 years and over (9.1% to 14.5%).

During the period 2004–05 to 2008–09, the total number of employed people grew by 9.8% to 10.8 million (table 8.5). This comprised an increase of 9.2% in the level of full-time employment and an increase of 11.5% in the level

### 8.4 LABOUR FORCE PARTICIPATION RATES(a), By age

Age group (years)	MALES		FEMALES	
	1988-89	2008-09	1988-89	2008-09
15-19	60.8	57.2	58.9	58.9
20-24	90.0	84.6	77.3	77.3
25-34	94.4	91.9	63.4	74.0
35-44	94.1	91.3	68.7	75.5
45-54	88.9	88.6	58.1	77.7
55-64	61.7	68.6	23.5	51.6
65 and over	9.1	14.5	2.3	5.6
<b>Total</b>	<b>75.2</b>	<b>72.3</b>	<b>50.4</b>	<b>58.7</b>

(a) Annual averages.

Source: *Labour Force, Australia, Detailed - Electronic Delivery (6291.0.55.001)*.

### 8.5 LABOUR FORCE STATUS(a)

	EMPLOYED			UNEMPLOYED			Labour force	Civilian population	Unemployment rate	Participation rate
	Full-time	Part-time	Total	Full-time	Part-time	Total				
	'000	'000	'000	'000	'000	'000				
<b>MALES</b>										
2004–05	4 628.2	799.3	5 427.6	229.2	59.4	288.7	5 716.2	7 965.0	5.0	71.8
2005–06	4 737.9	821.0	5 558.9	225.3	60.1	285.4	5 844.3	8 101.0	4.9	72.1
2006–07	4 848.1	865.8	5 713.9	201.4	53.8	255.1	5 969.1	8 244.2	4.3	72.4
2007–08	4 969.7	885.8	5 855.5	183.7	55.7	239.5	6 095.0	8 393.8	3.9	72.6
2008–09	4 985.1	899.0	5 884.1	241.5	61.3	302.7	6 186.9	8 553.4	4.9	72.3
<b>FEMALES</b>										
2004–05	2 415.7	1 984.7	4 400.3	155.5	95.1	250.6	4 651.0	8 248.4	5.4	56.4
2005–06	2 482.0	2 071.3	4 553.3	148.2	95.8	244.0	4 797.3	8 380.0	5.1	57.2
2006–07	2 598.8	2 093.4	4 692.2	145.6	92.1	237.7	4 929.9	8 518.0	4.8	57.9
2007–08	2 678.8	2 144.9	4 823.7	134.1	98.1	232.2	5 055.9	8 660.2	4.6	58.4
2008–09	2 705.6	2 203.8	4 909.4	159.5	99.9	259.4	5 168.8	8 809.7	5.0	58.7
<b>PERSONS</b>										
2004–05	7 043.9	2 784.0	9 827.9	384.7	154.5	539.3	10 367.2	16 213.3	5.2	63.9
2005–06	7 219.9	2 892.3	10 112.2	373.5	155.9	529.4	10 641.7	16 481.0	5.0	64.6
2006–07	7 446.9	2 959.2	10 406.1	347.0	145.9	492.9	10 899.0	16 762.2	4.5	65.0
2007–08	7 648.5	3 030.7	10 679.2	317.8	153.8	471.7	11 150.9	17 054.0	4.2	65.4
2008–09	7 690.7	3 102.8	10 793.5	401.0	161.2	562.2	11 355.7	17 363.2	5.0	65.4

(a) Annual averages.

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

### 8.6 LABOUR FORCE STATUS(a), By state and territory—2008–09

Capital city/balance of state	Employed		Unemployed	Labour force	Civilian population aged 15 and over	Unemployment rate	Participation rate
	full-time	Total employed					
	'000	'000					
Sydney	1 635.4	2 221.9	131.6	2 353.5	3 567.1	5.6	66.0
Balance of New South Wales	805.1	1 174.4	72.2	1 246.6	2 092.1	5.8	59.6
<i>New South Wales</i>	2 440.5	3 396.3	203.8	3 600.1	5 659.2	5.7	63.6
Melbourne	1 414.3	1 994.5	106.1	2 100.6	3 197.4	5.0	65.7
Balance of Victoria	436.1	662.9	36.7	699.6	1 139.5	5.2	61.4
<i>Victoria</i>	1 850.4	2 657.4	142.8	2 800.2	4 336.9	5.1	64.6
Brisbane	750.4	1 024.3	42.0	1 066.3	1 533.6	3.9	69.5
Balance of Queensland	862.1	1 202.9	60.7	1 263.6	1 913.6	4.8	66.0
<i>Queensland</i>	1 612.5	2 227.2	102.7	2 329.9	3 447.2	4.4	67.6
Adelaide	392.3	574.2	35.9	610.1	969.7	5.9	62.9
Balance of South Australia	150.2	218.4	9.4	227.7	348.1	4.1	65.4
<i>South Australia</i>	542.6	792.5	45.3	837.8	1 317.7	5.4	63.6
Perth	633.7	881.9	33.9	915.8	1 310.3	3.7	69.9
Balance of Western Australia	207.9	287.6	11.9	299.5	446.9	4.0	67.0
<i>Western Australia</i>	841.6	1 169.5	45.8	1 215.4	1 757.2	3.8	69.2
Hobart	69.7	102.8	4.5	107.3	170.5	4.2	62.9
Balance of Tasmania	93.1	135.5	6.9	142.4	232.6	4.8	61.2
<i>Tasmania</i>	162.8	238.2	11.4	249.6	403.2	4.6	61.9
<i>Northern Territory</i>	93.1	116.6	4.4	121.0	164.3	3.7	73.6
<i>Australian Capital Territory</i>	147.2	195.7	5.9	201.6	277.5	2.9	72.7
<b>Australia</b>	<b>7 690.7</b>	<b>10 793.5</b>	<b>562.2</b>	<b>11 355.7</b>	<b>17 363.2</b>	<b>5.0</b>	<b>65.4</b>

(a) Annual averages.

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).



## 8.7 LABOUR FORCE STATUS(a), By country of birth—2008–09

	Employed full-time	Total employed	Unemployed	Not in the		Unemploy- ment rate	Participation rate
				Labour force	labour force		
	'000	'000	'000	'000	'000	%	%
Born in Australia	5 601.1	7 918.1	390.9	8 309.0	3 751.4	4.7	68.9
Born overseas	2 088.3	2 873.4	170.8	3 044.2	1 904.5	5.6	61.5
Oceania and Antarctica	308.0	387.6	24.4	411.9	132.8	5.9	75.6
North-west Europe	603.5	839.0	29.8	868.8	555.4	3.4	61.0
Southern and Eastern Europe	239.4	323.1	13.0	336.1	459.1	3.9	42.3
North Africa and the Middle East	82.0	125.1	18.7	143.8	159.1	13.0	47.5
South-east Asia	290.2	384.9	26.2	411.1	202.7	6.4	67.0
North-east Asia	175.7	255.1	18.0	273.1	176.6	6.6	60.7
Southern and Central Asia	179.8	257.3	23.0	280.3	105.4	8.2	72.6
Americas	97.1	141.8	7.7	149.6	60.0	5.2	71.3
Sub-Saharan Africa	112.7	159.5	10.1	169.6	53.4	5.9	76.0
<b>Total(b)</b>	<b>7 690.7</b>	<b>10 793.5</b>	<b>562.2</b>	<b>11 355.7</b>	<b>6 007.5</b>	<b>5.0</b>	<b>65.4</b>

(a) Annual averages.

(b) Includes persons in institutions and persons whose country of birth was not specified or was unable to be classified by the Standard Australian Classification of Countries (SACC), Australia (1269.0).

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

of part-time employment. Part-time employed people represent more than a quarter (29%) of all employed people. Women account for the majority of the part-time workforce (71% of all part-time workers).

The unemployment rate fell from 5.2% in 2004–05 to 5.0% in 2008–09. The unemployment rate for women was slightly higher than for men in 2008–09 (5.0% compared with 4.9%).

Labour force participation, employment and unemployment vary across states and territories, and across capital cities and regional areas. Table 8.6 shows labour force status by state/territory and capital city/balance of state for 2008–09.

In 2008–09, of the states and territories, Tasmania had the lowest participation rate (61.9%) while the Northern Territory had the highest participation rate (73.6%). The Australian Capital Territory had the lowest unemployment rate (2.9%) and New South Wales had the highest unemployment rate (5.7%).

All states had lower unemployment rates and higher participation rates in the capital cities than in the balance of states, except South Australia, where in Adelaide the unemployment rate was higher and the participation rate was lower than in the balance of South Australia.

In 2008–09 there were 11.4 million people in the Australian labour force, of whom over a quarter (27%) were born overseas (table 8.7). The labour force participation rate of people born overseas was 61.5% compared with 68.9% for people born in Australia. This in part reflects the older age distribution of the overseas born population in Australia.

Table 8.8 provides an overview of the labour force status of people in 2008–09, according to the family relationship within the household. For partners in couple families with dependants present, husbands (or male partners) had a higher participation rate (93.7%) than wives (or female partners) (69.5%). Of the partners who were employed, a higher proportion of males were employed full-time (88%) than females (52%). For lone parents with dependants, the participation rate of male parents (81.0%) was higher than female parents (63.9%). On average, parents in a couple relationship with dependent children have a higher participation rate than those without dependent children (81.7% compared with 60.0%), mostly due to the younger ages of parents with dependants.

### Employed people

People are considered to be employed if they were in paid work or worked without pay in a family business, for one hour or more in the reference week of the ABS monthly LFS. People

### 8.8 LABOUR FORCE STATUS(a), By relationship in household—2008–09

	Employed full-time '000	Total employed '000	Unem- ployed '000	Labour force '000	Not in the labour force '000	Civilian population aged 15 and over '000	Unemploy- ment rate %	Participation rate %
<b>MALES</b>								
Family member	4 184.7	4 922.4	235.5	5 157.8	1 717.9	6 875.7	4.6	75.0
Husband or partner	3 409.4	3 783.4	101.5	3 884.9	1 180.8	5 065.8	2.6	76.7
With dependants	1 918.6	2 050.4	58.9	2 109.3	141.8	2 251.1	2.8	93.7
Without dependants	1 490.7	1 733.0	42.7	1 775.6	1 039.0	2 814.6	2.4	63.1
Lone parent	100.8	119.2	7.6	126.8	48.3	175.2	6.0	72.4
With dependants	64.0	77.3	5.6	83.0	19.5	102.5	6.8	81.0
Without dependants	36.8	41.9	2.0	43.9	28.8	72.7	4.5	60.3
Dependent student	19.4	217.2	35.9	253.0	292.2	545.2	14.2	46.4
Non-dependent child(b)	558.6	678.8	76.6	755.4	135.6	890.9	10.1	84.8
Other family person	96.7	123.7	13.9	137.6	60.9	198.6	10.1	69.3
Non-family member	735.1	873.5	55.1	928.6	427.1	1 355.7	5.9	68.5
Lone person	452.2	518.1	32.1	550.1	331.9	882.1	5.8	62.4
Not living alone	282.9	355.5	23.0	378.5	95.2	473.7	6.1	79.9
Relationship in household not determined	65.3	88.2	12.2	100.4	221.6	322.0	12.1	31.2
<b>Total</b>	<b>4 985.1</b>	<b>5 884.1</b>	<b>302.7</b>	<b>6 186.9</b>	<b>2 366.6</b>	<b>8 553.4</b>	<b>4.9</b>	<b>72.3</b>
<b>FEMALES</b>								
Family member	2 214.7	4 202.6	219.6	4 422.2	2 635.6	7 057.8	5.0	62.7
Wife or partner	1 619.1	3 002.2	98.0	3 100.3	1 860.2	4 960.5	3.2	62.5
With dependants	631.2	1 478.7	53.9	1 532.5	671.8	2 204.4	3.5	69.5
Without dependants	987.9	1 523.6	44.2	1 567.7	1 188.4	2 756.1	2.8	56.9
Lone parent	208.5	397.4	40.5	437.8	320.9	758.7	9.2	57.7
With dependants	144.5	302.2	36.1	338.2	191.3	529.6	10.7	63.9
Without dependants	64.0	95.2	4.4	99.6	129.5	229.1	4.4	43.5
Dependent student	16.7	281.5	35.0	316.5	247.5	563.9	11.1	56.1
Non-dependent child(b)	303.1	421.1	36.8	457.9	84.5	542.4	8.0	84.4
Other family person	67.4	100.4	9.4	109.7	122.6	232.3	8.5	47.2
Non-family member	452.9	637.1	33.5	670.6	683.7	1 354.3	5.0	49.5
Lone person	298.2	407.9	18.2	426.2	603.4	1 029.6	4.3	41.4
Not living alone	154.7	229.2	15.3	244.5	80.3	324.8	6.2	75.3
Relationship in household not determined	37.9	69.6	6.3	76.0	321.6	397.6	8.3	19.1
<b>Total</b>	<b>2 705.6</b>	<b>4 909.4</b>	<b>259.4</b>	<b>5 168.8</b>	<b>3 640.9</b>	<b>8 809.7</b>	<b>5.0</b>	<b>58.7</b>

(a) Annual averages.

(b) Aged 15 years and over.

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

### 8.8 LABOUR FORCE STATUS(a), By relationship in household—2008–09 *continued*

	Employed full-time '000	Total employed '000	Unem- ployed '000	Labour force '000	Not in the labour force '000	Civilian population aged 15 and over '000	Unemploy- ment rate %	Participation rate %
<b>PERSONS</b>								
Family member	6 399.4	9 124.9	455.1	9 580.0	4 353.5	13 933.5	4.8	68.8
Husband, wife or partner	5 028.4	6 785.6	199.6	6 985.2	3 041.0	10 026.2	2.9	69.7
With dependants	2 549.8	3 529.1	112.7	3 641.8	813.7	4 455.5	3.1	81.7
Without dependants	2 478.6	3 256.6	86.8	3 343.4	2 227.3	5 570.7	2.6	60.0
Lone parent	309.3	516.6	48.1	564.7	369.2	933.8	8.5	60.5
With dependants	208.5	379.5	41.7	421.2	210.8	632.0	9.9	66.6
Without dependants	100.8	137.1	6.4	143.5	158.3	301.8	4.4	47.5
Dependent student	36.1	498.7	70.8	569.5	539.7	1 109.2	12.4	51.3
Non-dependent child(b)	861.6	1 099.9	113.4	1 213.3	220.0	1 433.4	9.3	84.6
Other family person	164.0	224.1	23.3	247.4	183.5	430.9	9.4	57.4
Non-family member	1 188.0	1 510.7	88.6	1 599.3	1 110.8	2 710.1	5.5	59.0
Lone person	750.4	926.0	50.3	976.3	935.3	1 911.6	5.2	51.1
Not living alone	437.6	584.7	38.3	623.0	175.5	798.5	6.1	78.0
Relationship in household not determined	103.3	157.9	18.5	176.4	543.2	719.6	10.5	24.5
<b>Total</b>	<b>7 690.7</b>	<b>10 793.5</b>	<b>562.2</b>	<b>11 355.7</b>	<b>6 007.5</b>	<b>17 363.2</b>	<b>5.0</b>	<b>65.4</b>

(a) Annual averages.

(b) Aged 15 years and over.

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

who were absent from work in the reference week of the survey were also considered to be employed, unless they had been on unpaid leave for more than four weeks. This section contains information on people who are employed, including whether they worked full time or part time, their industry and occupation, and the characteristics of their employment arrangements.

Measuring changes between employment levels and population levels enables evaluation of the strength of employment growth compared with

population growth. The measure relating these two levels is the employment to population ratio. This ratio reflects net changes in the number of people employed relative to changes in the size of the population, whereas movements in the employment level reflect net changes in the number of people holding jobs.

The employment to population ratio rose from 60.6% in 2004–05 to 62.2% in 2008–09 (table 8.9). As in previous years, in 2008–09 the employment to population ratio was higher for men than for women (68.8% compared with 55.7%), which

### 8.9 EMPLOYED PERSONS, Employment to population ratio(a)

	2004–05	2005–06	2006–07	2007–08	2008–09
	%	%	%	%	%
Males	68.1	68.6	69.3	69.8	68.8
Females	53.3	54.3	55.1	55.7	55.7
Persons	60.6	61.4	62.1	62.6	62.2

(a) The employment to population ratio for any group is the annual average number of employed persons expressed as a percentage of the annual average civilian population aged 15 years and over in the same group.

Source: Labour Force, Australia (6202.0).

reflects the higher participation of men in the labour force.

### Full-time and part-time employment

Employed people are regarded as either full-time or part-time workers depending on the number of hours worked. Full-time workers are those who usually work 35 hours or more per week in all jobs, or usually work less than 35 hours a week but actually worked 35 hours or more during the reference week of the LFS. Part-time workers are those who usually work less than 35 hours a week

and either did so during the reference week, or were not at work during the reference week.

Graph 8.10 shows annual percentage changes in part-time and full-time employment from 1988–89 to 2008–09. Both full-time and part-time employment increased each year throughout the period except between 1990–91 and 1992–93 and in 2001–02, when full-time employment decreased. Part-time employment has generally increased at a faster rate than full-time employment over the period. However, in recent years (2003–04, 2004–05, 2006–07 and 2007–08) full-time employment grew at a faster rate.



Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

### 8.11 EMPLOYED PERSONS(a), Full-time and part-time workers—2008–09

		AGE GROUP (YEARS)							Total	
		15–19	20–24	25–34	35–44	45–54	55–59	60–64		65 and over
<b>MALES</b>										
Full-time workers	'000	157.7	444.4	1 187.8	1 262.3	1 160.7	414.4	257.0	100.8	4 985.1
Part-time workers	'000	206.7	152.9	119.1	96.5	101.1	64.7	71.1	86.8	899.0
Total	'000	364.4	597.3	1 306.9	1 358.9	1 261.8	479.1	328.1	187.6	5 884.1
Proportion of part-time workers	%	56.7	25.6	9.1	7.1	8.0	13.5	21.7	46.3	15.3
<b>FEMALES</b>										
Full-time workers	'000	79.6	330.0	711.1	580.7	657.2	220.8	100.4	25.8	2 705.6
Part-time workers	'000	284.1	211.6	334.1	547.6	469.4	176.4	120.1	60.5	2 203.8
Total	'000	363.7	541.5	1 045.2	1 128.4	1 126.6	397.2	220.5	86.3	4 909.4
Proportion of part-time workers	%	78.1	39.1	32.0	48.5	41.7	44.4	54.5	70.1	44.9
<b>PERSONS</b>										
Full-time workers	'000	237.3	774.3	1 898.9	1 843.1	1 817.9	635.1	357.4	126.6	7 690.7
Part-time workers	'000	490.8	364.5	453.2	644.2	570.5	241.2	191.2	147.3	3 102.8
Total	'000	728.1	1 138.9	2 352.1	2 487.2	2 388.4	876.3	548.6	273.9	10 793.5
Proportion of part-time workers	%	67.4	32.0	19.3	25.9	23.9	27.5	34.9	53.8	28.7

(a) Annual averages.

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

The proportion of employed people who were working part-time was affected by these different rates of change, rising from 20% in 1988–89 to 29% in 2008–09.

Employment growth fluctuated during the strong economic growth of the late 1980s and the subsequent economic downturn of the early 1990s. In 1988–89, growth in full-time employment peaked at 3.6%. Part-time employment grew strongly in 1989–90 (8.2%). The rate of growth of full-time and part-time employment subsequently began to slow. At the onset of the economic downturn in 1990–91, full-time employment fell by 1.6%. The impact of the downturn and its effects on the demand for labour intensified in 1991–92 when full-time employment fell more strongly (down 3.4%). At the same time, the rate of growth of part-time employment increased, from 3.2% in 1990–91 to 3.8% in 1991–92. A similar pattern was evident in 2001–02, when a decrease in full-time employment was accompanied by strong growth in part-time employment. After 2001–02, full-time employment grew to a peak of 3.1% in 2006–07 and slowed from 2.7% to 0.6% between 2007–08 and 2008–09. Part-time employment growth has remained steady at about 2.4% for the last three years.

In 2008–09 there were 10.8 million employed people, with almost three-quarters (71%) working full time (table 8.11). Men were more likely than

women to work full time (85% compared with 55%). Part-time work was most prevalent among the younger (15–19 years) and older (65 years and over) age groups (67% and 54% respectively).

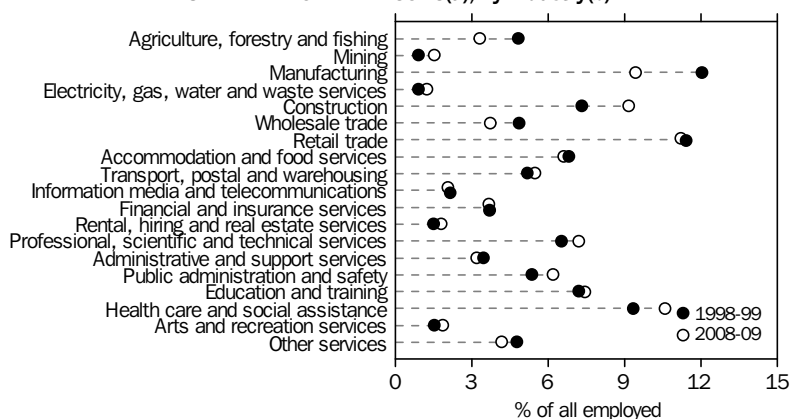
## Employment by industry and occupation

The distribution of employed people across industries and occupations, and the changes over time, provide an important insight into the structure of the labour market. Graph 8.12 shows the proportion of employed people by industry, for the years 1998–99 and 2008–09.

The industry composition of the labour market has changed considerably over time. Historically, the Manufacturing industry has been the largest employing industry, but its contribution to the number of employed people has been declining. Over the past decade Manufacturing employment fell from 12% of all employed people in 1998–99 to 9% in 2008–09. The proportion of people employed in the Agriculture, forestry and fishing industry also fell over this period, from 5% to 3%. During the same period, the greatest increase in the proportion of employed people was in the Construction industry (from 7% to 9%).

Table 8.13 shows the proportion of employed people in each broad occupation group by age group for 2008–09. The occupation groups with the highest proportions of employed people

**8.12 EMPLOYED PERSONS(a), By industry(b)**



(a) Annual average of quarterly data.

(b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 (1292.0).

Source: Labour Force, Australia, Detailed, Quarterly (6291.0.55.003).

### 8.13 EMPLOYED PERSONS(a), By occupation—2008-09

Occupation group (b)		AGE GROUP (YEARS)								Total
		15-19	20-24	25-34	35-44	45-54	55-59	60-64	65 and over	
Managers	%	1.4	4.8	11.1	14.8	15.9	16.0	17.2	27.5	12.9
Professionals	%	1.9	13.3	26.2	23.0	21.5	22.1	21.6	21.5	20.8
Technicians and trades workers	%	17.1	19.9	16.7	14.9	13.2	12.9	12.9	11.3	15.2
Community and personal service workers	%	12.7	13.8	8.3	8.1	8.4	8.0	6.3	4.9	8.9
Clerical and administrative workers	%	7.2	16.1	15.3	16.1	17.0	16.3	15.3	11.4	15.4
Sales workers	%	34.4	15.0	7.7	6.5	6.2	6.1	6.5	5.9	9.4
Machinery operators and drivers	%	2.5	4.6	5.9	7.3	8.1	8.0	8.6	5.7	6.7
Labourers	%	22.7	12.5	8.8	9.2	9.7	10.6	11.5	11.7	10.7
<b>Persons</b>	<b>`000</b>	<b>715.1</b>	<b>1 129.3</b>	<b>2 348.5</b>	<b>2 486.4</b>	<b>2 390.6</b>	<b>875.7</b>	<b>552.1</b>	<b>269.1</b>	<b>10 766.6</b>

(a) Annual average of quarterly data.

(b) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First Edition (1220.0).

Source: Labour Force, Australia, Detailed, Quarterly (6291.0.55.003).

were Professionals (21%) and Clerical and administrative workers (15%). The occupation group with the lowest proportion of employed people was Machinery operators and drivers (7%).

There is a correlation between age and occupation, with a higher proportion of younger workers employed in the lower-skilled occupations, and a higher proportion of older workers employed in the more highly-skilled occupations. For example, 1% of 15-19 year old

workers were employed as Managers and 2% as Professionals, while at the other end of the age spectrum, for those aged 65 years and over, 28% were employed as Managers and 22% as Professionals. In the 15-19 year age group, 34% of employed people were employed as Sales workers and a further 23% as Labourers. The proportion of 20-24 year olds employed as Sales workers (15%) was considerably lower than the proportion of 15-19 year olds employed in this occupation group. In contrast, there was a much higher proportion of 20-24 year olds than

### 8.14 EMPLOYED PERSONS(a), By occupation(b)—2008-09



(a) Annual average of quarterly data.

(b) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First Edition (1220.0).

Source: Labour Force, Australia, Detailed, Quarterly (6291.0.55.003).

15–19 year olds employed as Clerical and administrative workers (16% compared with 7%).

There are large gender differences in occupations. Women were more likely than men to be employed as Clerical and administrative workers, Community and personal service workers, and Sales workers. In contrast, men were more likely than women to be employed as Technicians and trades workers, Labourers, and Machinery operators and drivers (graph 8.14). For example, in 2008–09, 24% of men were employed as Technicians and trades workers compared with 5% of women, while 26% of women were employed as Clerical and administrative workers compared with 7% of men. In the more highly-skilled occupations, proportionally more men were employed as Managers (15% compared with 10% of women), while proportionally more women were employed as Professionals (24% compared with 19% of men).

## Characteristics of employment

Working life in Australia continues to change. There are more diverse employment arrangements, greater flexibility in work patterns, and more people working part time. This section looks at the types of arrangements people are employed under, and the hours they work.

### Employment type

Employed people are classified to one of five employment categories on the basis of their main job, that is, the job in which they usually work the most hours. When classifying people by employment type, owner managers of incorporated enterprises are distinguished from other employees. The employment types are:

- employees (excluding owner managers of incorporated enterprises) with paid leave entitlements;
- employees (excluding owner managers of incorporated enterprises) without paid leave entitlements (a proxy for casual employment);
- owner managers of incorporated enterprises;
- owner managers of unincorporated enterprises; and
- contributing family workers.

For more details see the article 'Changes in types of employment' in *Australian Labour Market Statistics, October 2004* (6105.0).

Table 8.15 shows the proportion of employed people by employment type. Of the 10.5 million employed people at August 2008, over three-fifths (63%) were employees with paid leave entitlements and 20% were employees without paid leave entitlements. A further 11% were owner managers of unincorporated enterprises and 6% were owner managers of incorporated enterprises.

The proportion of employed people who worked as employees with paid leave entitlements was similar for men and women (64% and 63% respectively). However, a higher proportion of women were employees without paid leave entitlements than men (25% and 16% respectively) reflecting the fact that women are more likely to work part time than men, and that part-time work is more closely associated with casual employment. A higher proportion of men were owner managers compared with women (20% and 12% respectively).

The proportion of employees with paid leave entitlements declined slightly between 1994 and 2004 (from 61% to 59% of employed persons). However, since 2004 the proportion of

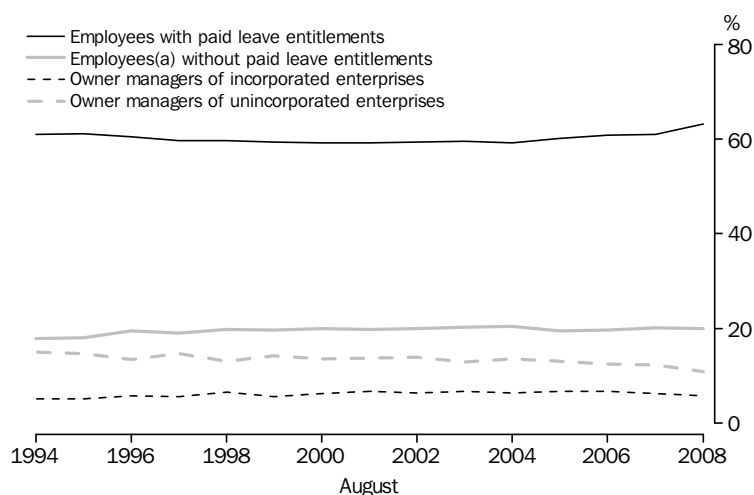
**8.15 EMPLOYED PERSONS, By employment type—August 2008**

	Employees with paid leave entitlements(a)	Employees without paid leave entitlements(a)	Owner managers of incorporated enterprises	Owner managers of unincorporated enterprises	Contributing family workers	Total
	%	%	%	%	%	'000
Males	63.6	16.0	7.2	13.0	0.2	5 705.0
Females	62.7	24.8	4.0	8.3	0.3	4 767.5
Persons	63.2	20.0	5.7	10.9	0.2	10 472.5

(a) Excluding owner managers of incorporated enterprises.

Source: Australian Labour Market Statistics, Datacubes, Table 2 (6105.0).

### 8.16 TYPES OF EMPLOYMENT, Proportion of employed



(a) Excluding owner managers of incorporated enterprises.

Source: Australian Labour Market Statistics, Datacubes, Table 2 (6105.0).

employees with paid leave entitlements increased by four percentage points, to stand at 63% at August 2008 (graph 8.16). Employees without paid leave entitlements rose as a proportion of total employment from 1994 to 1998 (from 18% to 20%). Since 1998 the proportion has remained relatively stable. As a proportion of total employment, owner managers remained stable between 1994 and 2007, but fell slightly in 2008. Of total employment, the proportion of owner managers of incorporated enterprises increased from 5% in 1994 to 7% in 2006 and back to 6% in 2008, while over the same period owner managers of unincorporated enterprises fell from 15% to 11%. Owner managers of incorporated enterprises as a proportion of all owner managers increased from 25% in 1994 to 34% in 2008.

#### Hours worked

Hours worked statistics have a wide range of uses, including the calculation of labour productivity and monitoring of working conditions. Information on hours worked allows the ABS to classify employed people as full time or part time, and also to identify underemployed people (in conjunction with information about wanting to work more hours).

The LFS collects weekly hours worked data for employed people on three different bases:

- *actual hours worked in all jobs* – hours actually worked in the survey reference week, including overtime and excluding time off
- *actual hours worked in main job* – hours actually worked in the survey reference week (including overtime and excluding any time off) in the job in which the most hours are usually worked
- *usual hours worked in all jobs* – hours usually worked per week by an employed person.

Data for the latter two measures are available from April 2001, while the first measure has been collected since the LFS began in the 1960s.

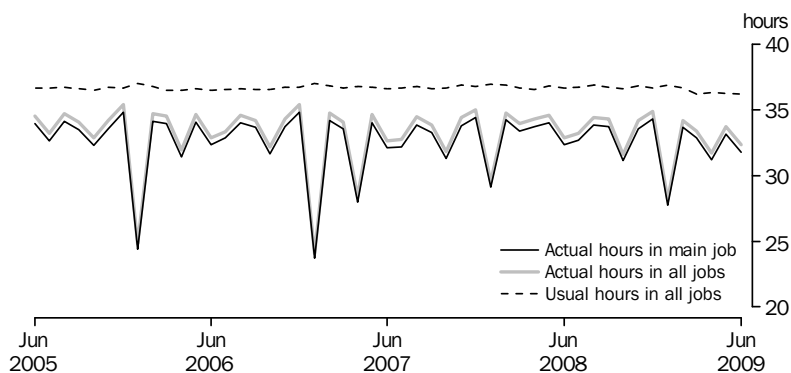
In addition to the three reference week measures outlined above, the ABS also produces an aggregate monthly hours worked series, which measures the total number of hours worked by employed persons in a calendar month.

Graph 8.17 shows average weekly hours worked for employed people for each of the three measures. Average weekly hours worked is the hours worked by employed people during the reference week divided by the number of employed people.

The two average weekly hours actually worked measures are influenced by seasonal factors (e.g. customs in taking leave at particular times of the year), economic factors

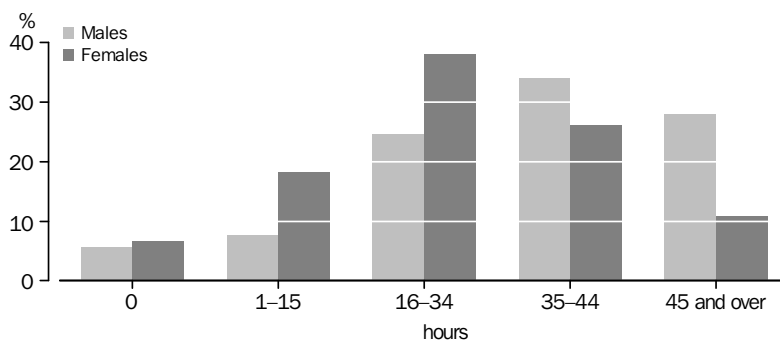


### 8.17 EMPLOYED PERSONS, Average weekly hours worked



Source: *Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001)*.

### 8.18 EMPLOYED PERSONS(a), Actual hours worked in all jobs—June 2009



(a) Includes employed persons who were away from work during the survey reference week.

Source: *Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001)*.

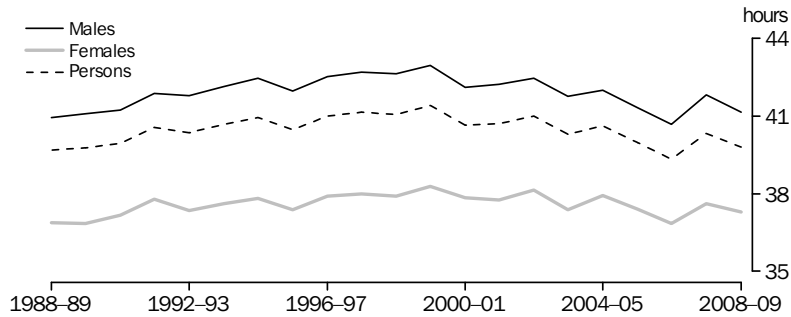
(e.g. workplace-related influences such as seasonal employment), and absences from work due to public holidays, sickness, irregular shifts, etc. Large movements occur around the months of January, April and October. The average weekly hours worked in main job series closely follows the average weekly hours worked in all job series, but at a slightly lower level. This indicates that the number of hours worked in second and subsequent jobs, averaged across all employed people, is relatively small.

Average weekly hours usually worked in all jobs exhibits much lower levels of variability (graph 8.17). This is because the usual hours worked series is not affected by seasonal factors and absences from work that lead to fluctuations in the actual hours worked series.

In June 2009, more than a third (34%) of employed men worked between 35 and 44 hours per week, and a further 28% worked 45 hours or more per week (graph 8.18). Women were most likely to have worked between 16 and 34 hours per week (38%), or between 35 and 44 hours (26%). Women who worked 45 hours or more per week made up 11% of all employed women.

Average weekly hours actually worked by full-time employed people rose from 39.7 hours in 1988–89 to a peak of 41.4 hours in 1999–2000, an increase of 4% (graph 8.19). In 2008–09, full-time employed people worked an average of 39.8 hours per week, a slight decrease from 40.3 hours per week recorded in 2007–08. Full-time employed men worked an average of 41.1 hours per week in 2008–09 while full-time employed

### 8.19 AVERAGE WEEKLY ACTUAL HOURS WORKED(a), Full-time employed persons(b)

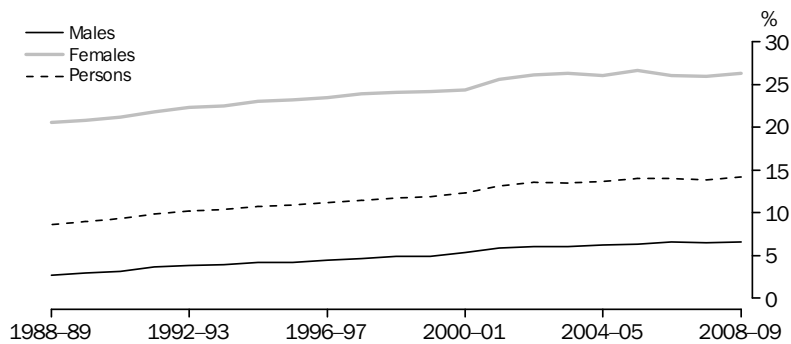


(a) Annual averages.

(b) Includes employed persons who were away from work during the survey reference week.

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

### 8.20 PART-TIME HOURS AS A PROPORTION OF TOTAL ACTUAL HOURS WORKED(a)



(a) Annual averages.

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

women worked an average of 37.3 hours per week.

From 1988–89 to 2008–09 there was a steady increase in the number of hours actually worked by part-time workers as a proportion of the total number of hours actually worked (graph 8.20). In 1988–89, 9% of all hours actually worked were in part-time employment; by 2008–09 this proportion had risen to 14%. For men, 7% of the total number of hours actually worked were in part-time employment in 2008–09, whereas for women the proportion was 26%.

Table 8.21 shows the average weekly hours usually worked by men was ten hours greater than for women (41.1 hours and 31.2 hours respectively). This was partly due to men working longer usual weekly hours in full-time

employment than women (45.2 hours and 41.4 hours respectively), and also because women were more likely to work part time than men. The usual hours worked in all jobs by full-time employed people declined slightly over the last number of years, from 44.5 hours per

### 8.21 EMPLOYED PERSONS, Average weekly hours usually worked(a)—2008–09

	Males	Females	Persons
	hours	hours	hours
Full-time workers	45.2	41.4	43.9
Part-time workers	18.2	18.7	18.6
<b>Total</b>	<b>41.1</b>	<b>31.2</b>	<b>36.6</b>

(a) Annual averages.

Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.001).

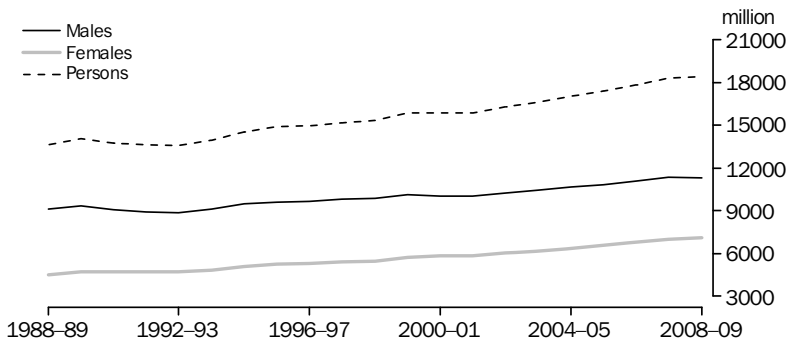
**8.22 AVERAGE WEEKLY HOURS USUALLY WORKED(a),  
Full-time employed persons by occupation(b)—2008–09**



(a) Annual average of quarterly data. (b) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First edition (1220.0).

Source: ABS data available on request, Labour Force Survey.

**8.23 AGGREGATE HOURS WORKED(a)**



(a) Calculated from trend estimates of aggregate monthly hours worked.

Source: Labour Force, Australia (6202.0).

week in 2001–02 to 43.9 hours per week in 2008–09.

Graph 8.22 shows average weekly hours usually worked in all jobs, by occupation, for full-time employed people. In 2008–09, Managers had the highest average weekly usual hours worked for full-time employed people (50.7 hours per week for men and 45.6 hours per week for women), followed by Machinery operators and drivers (46.7 hours and 42.2 hours respectively). The occupation with the lowest average weekly hours usually worked for full-time employed people was Clerical and administrative workers (42.6 hours per week for men and 39.7 hours per week for women).

In 2009, the ABS released a new hours worked series, aggregate monthly hours worked, which measures the total number of hours worked by employed persons in a calendar month. This series differs from the actual and usual hours worked series above since they relate only to the hours worked in the reference week. Aggregate monthly hours worked is available as both seasonally adjusted and trend series. This allows for comparison between months, with the estimates having been adjusted for seasonality and the effects of holidays.

Actual and usual hours worked cannot be aggregated across time to produce either quarterly or annual estimates as they relate to

only a single week in the month. Therefore, the annual data presented in graphs 8.19 to 8.22 are annual averages. In contrast, aggregate monthly hours worked estimates are a true monthly measure which can be aggregated across time to produce annual estimates.

The annual trend estimate of aggregate hours worked has generally increased since 1988–89.

The only exceptions have been in the economic downturns in the early 1990s and 2000–01. Aggregate hours worked increased from 13,579 million hours in 1992–93 to 18,395 million hours in 2008–09. In 2008–09, men worked 11,314 million hours (62% of all hours worked), while women worked 7,081 million hours.

## Independent contractors

Independent contractors are sometimes referred to as consultants or freelancers. The term 'contractors' is also used, however this is a broad term that is often used to describe people with a variety of forms of employment, for example, not only true independent contractors, but also employees engaged in short-term or fixed-term work, often engaged through a third party (e.g. a labour hire firm/employment agency). The measure of independent contractors used in this article refers to people who are not employees, but who may be operating in a similar manner to employees, and comes from the *Forms of Employment Survey* (FOES) (6359.0).

In FOES, independent contractors are defined as those who operate their own business and who contract to perform services for others without having the legal status of an employee, that is, they are engaged by a client under a commercial contract, rather than as an employee under an employment contract. Thus, independent contractors have the same rights as their clients under common law to control the terms of the contract.

FOES also identifies two other groups of employed people: employees; and other business operators. Employees are those who work for a public or private employer and receive remuneration in wages or salary. They are engaged under a contract of service (an employment contract) and take directions directly from their employer on how the work is performed. Other business operators are employed people who operate their own business but are not operating as independent contractors. They are distinguished from independent contractors in that they usually generate their income from managing staff or from selling goods or services to the public, rather than providing a labour service directly to a client.

### Overview

In November 2008 there were 10.7 million employed people aged 15 years and over in Australia. Of these, 1.0 million were independent contractors in their main job, making up 9% of employed people. A further 8.6 million people (81%) were employees in their main job, while

1.1 million (10%) were other business operators in their main job. A further 100,000 employed people who were multiple job holders and who were not independent contractors in their main job were independent contractors in their second job. Therefore, the total number of employed people working as independent contractors in November 2008 was 1.1 million, or 10% of all employed people. While employed people may be independent contractors in their main or second job, the remainder of this article focuses on those employed people who were independent contractors in their main job.

### Age and sex

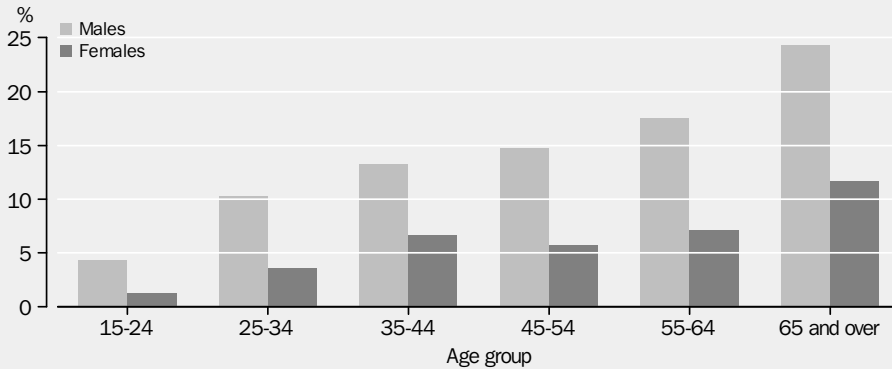
Men were more likely to be independent contractors, with 12% of employed men working as independent contractors in their main job, compared with 5% of women, and across all age groups there were proportionally more men who were independent contractors than women. Consequently, men made up the majority of independent contractors (75%). Around half of independent contractors (50% of men and 58% of women) were aged 35–54 years.

The proportion of independent contractors increases with age, with just 3% of 15–24 year old employed people working as independent contractors, compared with 20% of those aged 65 years and over (graph 8.24). This indicates that once people pass the traditional retirement age, they may move from being in employee positions to operating their own businesses, for example, as consultants. This may be due to their ability as independent contractors to choose the hours and conditions under which they work, particularly as part of a transition to retirement.

### Occupation and industry

Male independent contractors were most likely to be Technicians and trades workers, with over one third (36%) employed in this occupation (graph 8.25). In comparison, 24% of the total male employed population were Technicians and trade workers. Female independent contractors were more likely to be Professionals, with 32% of female independent contractors working in this occupation, compared with 24% of the total

**8.24 INDEPENDENT CONTRACTORS, proportion within each age group—November 2008**



Source: *Forms of Employment, Australia, November 2008 (6359.0)*.

female employed population who were employed as Professionals.

Male independent contractors were most likely to be found operating their business in the Construction industry, with over two fifths (41%) working in that industry (graph 8.26). Almost two thirds (62%) of these men were employed as Technicians and trade workers, and a further 17% as Labourers. The highest proportion of female independent contractors was found in the Professional, scientific and technical services industry (23%), with over half (52%) of these women working as Professionals and over one third (34%) working as Clerical and administrative workers. It should be noted that the industry of independent contractors reflects the industry of

the independent contractors' business, rather than the industry of their client.

**Hours worked**

The working hours of independent contractors in their main job varied from other forms of employment. The average usual hours worked by male independent contractors was 44 hours per week, which was higher than that of employees (41 hours), but lower than that of male other business operators (49 hours). Female independent contractors, however, worked fewer hours (27 hours) than both female employees and other business operators (both 33 hours) (graph 8.27).

**8.25 INDEPENDENT CONTRACTORS, By sex and occupation(a)—November 2008**

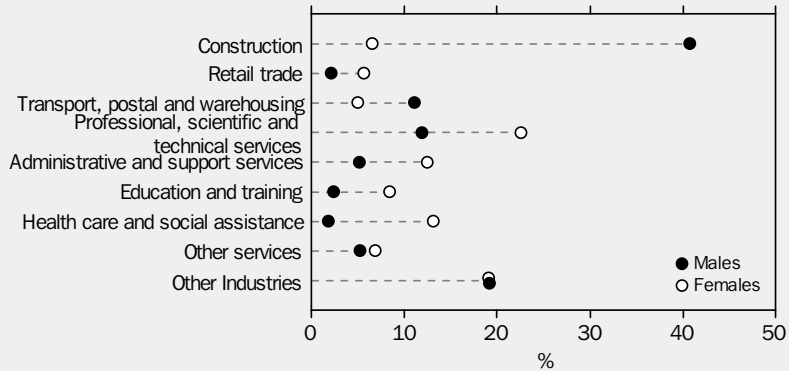


(a) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First edition (1220.0).

(b) Female Machinery Operators and Drivers had a relative standard error greater than 25%.

Source: *Forms of Employment, Australia, November 2008 (6359.0)*.

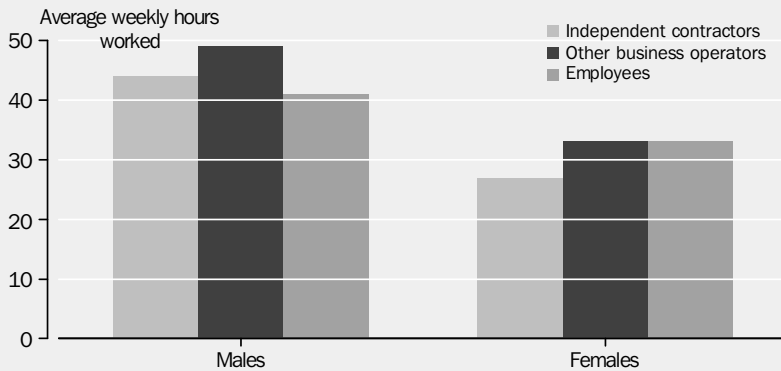
**8.26 INDEPENDENT CONTRACTORS, By selected industries(a) and sex—November 2008**



(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 (1292.0).

Source: *Forms of Employment, Australia, November 2008* (6359.0).

**8.27 AVERAGE WEEKLY HOURS, By form of employment and sex—November 2008**

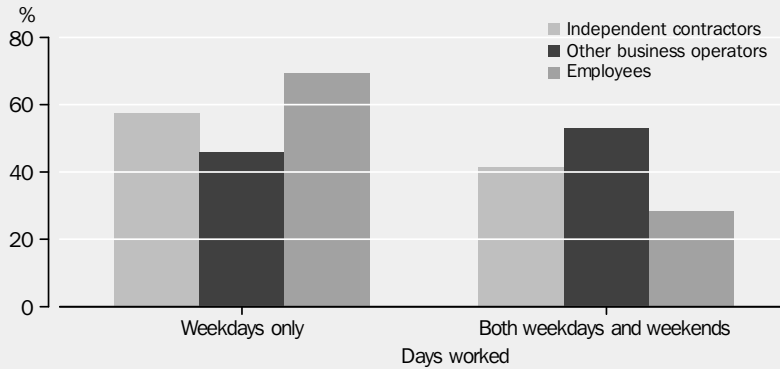


Source: *Forms of Employment, Australia, November 2008* (6359.0).

People who operate their own business tend to work longer hours than those who are employees. Over one third (36%) of male independent contractors and over half (53%) of male other business operators usually worked

49 hours or more, compared with just 18% of employees. Like men, female other business operators were most likely to work longer hours, with over one fifth (21%) usually working 49 hours or more per week.

**8.28 FORM OF EMPLOYMENT , By days of week worked —November 2008**



Source: *Forms of Employment, Australia, November 2008 (6359.0)*.

### Working patterns

The days on which independent contractors worked varied from those engaged in other forms of employment. Over half (55%) of male independent contractors worked weekdays only. In contrast, over two thirds (69%) of employees and less than half (43%) of other business

operators worked weekdays only. Female independent contractors were more likely than male independent contractors to work on weekdays only, with two thirds (66%) working only on weekdays. Like men, a large proportion (70%) of female employees worked weekdays only, while about half (51%) of other business operators worked weekdays only (graph 8.28).



## Interstate commuters

The movement of workers across state and territory borders can have implications for how federal, state/territory and local governments plan and distribute funding, infrastructure and other amenities. This article uses data from the 2006 Census of Population and Housing to analyse these movements and relates to the main job of the individual in the week prior to the Census. Employed people who live in one state but work in another are referred to in this article as interstate commuters.

According to the 2006 Census, 101,300 people commuted interstate for work in the week prior to the Census, accounting for 1% of all employed persons. Of those, 62% were men and 38% were women. The age distribution of people who commuted interstate for work was similar to that of all employed people.

### Commuting from...

In 2006, 4% of all employed people living in the Australian Capital Territory commuted interstate for work in the week prior to the Census (table 8.29). The states and territories with the next highest proportion of interstate commuters were New South Wales (2%) and the Northern Territory (2%). People who lived in the Australian Capital Territory were more likely to commute interstate for work due to its small size and the fact that it is surrounded by New South Wales.

New South Wales had the largest number of people who commuted outside of the state to work (48,300) followed by Victoria (20,200) and Queensland (15,500) (table 8.30).

### Commuting to...

The Australian Capital Territory also received proportionally more interstate commuters than any other state or territory. In 2006, 12% of people working in the Australian Capital Territory were usual residents of another state or territory (table 8.29). These people commuted into Canberra from nearby Queanbeyan, Yass and adjacent semi-rural areas of New South Wales.

New South Wales received the largest number of interstate commuters (30,000), followed by the Australian Capital Territory (22,500), Victoria (17,900) and Queensland (16,900) (Table 8.30).

## Commuting flows

Table 8.31 shows that of those who lived in New South Wales but worked interstate, 44% worked in the Australian Capital Territory, 26% in Victoria and 25% in Queensland. The combination of these three bordering states accounted for 94% of employed people who lived in and commuted from New South Wales.

For employed people who lived in and commuted from Victoria, 66% worked in New South Wales and 7% worked in South Australia, both of which share a border with Victoria. This pattern was similar for most other states and territories. However, this was not the case with Western Australia. About 68% of employed people who commuted from Western Australia commuted to non-bordering states – Victoria (25%), New South Wales (23%) and Queensland (20%).

## In which industries do commuters work?

Interstate commuting is more closely associated with some industries than others (table 8.32). For example, the Public administration and safety industry accounted for just 7% of all employed

**8.29 INTERSTATE COMMUTERS, Proportion of all employed persons(a)—August 2006**

States and territories (b)	Proportion employed who commuted from	Proportion employed who commuted to
	%	%
New South Wales	1.7	1.1
Victoria	0.9	0.8
Queensland	0.9	1.0
South Australia	0.7	0.5
Western Australia	0.4	0.6
Tasmania	0.9	0.5
Northern Territory	1.6	4.5
Australian Capital Territory	3.5	12.1
<b>Australia</b>	<b>1.2</b>	<b>1.2</b>

(a) Excludes those employed persons who did not say where they were working (not stated).

(b) 'Other Territories' excluded from analysis due to very small numbers.

Source: Census of Population and Housing, 2006.

### 8.30 EMPLOYED PERSONS(a), Place of usual residence and place of work(b)

Place of Usual Residence (b)	PLACE OF WORK(b)							Australian Capital Territory	Total employed exited	Total employed
	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory			
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
New South Wales	2 718 323	12 352	11 816	739	1 373	229	734	21 016	48 259	2 766 582
Victoria	13 297	2 141 997	2 617	1 352	1 344	416	586	625	20 237	2 162 234
Queensland	9 081	2 267	1 720 747	742	1 388	203	1 330	490	15 501	1 736 248
South Australia	921	1 341	834	655 089	686	72	483	153	4 490	659 579
Western Australia	865	945	748	432	884 869	74	544	126	3 734	888 603
Tasmania	365	585	366	109	249	194 508	86	74	1 834	196 342
Northern Territory	191	197	298	149	389	14	80 942	44	1 282	82 224
Australian Capital Territory	5 328	230	188	47	79	10	52	163 524	5 934	169 458
Total employed entered	30 048	17 917	16 867	3 570	5 508	1 018	3 815	22 528	101 271	..
Total employed	2 748 371	2 159 914	1 737 614	658 659	890 377	195 526	84 757	186 052	..	8 661 270

.. not applicable

(a) Excludes those employed persons who did not say where they were working (not stated).

(b) 'Other Territories' excluded from analysis due to very small numbers.

Source: Census of Population and Housing, 2006.

### 8.31 INTERSTATE COMMUTERS, Proportion from each state(a)—August 2006

Place of Usual Residence (b)	PLACE OF WORK(b)							Australian Capital Territory	Total
	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory		
	%	%	%	%	%	%	%	%	%
New South Wales	..	25.6	24.5	1.5	2.8	0.5	1.5	43.5	100.0
Victoria	65.7	..	12.9	6.7	6.6	2.1	2.9	3.1	100.0
Queensland	58.6	14.6	..	4.8	9.0	1.3	8.6	3.2	100.0
South Australia	20.5	29.9	18.6	..	15.3	1.6	10.8	3.4	100.0
Western Australia	23.2	25.3	20.0	11.6	..	2.0	14.6	3.4	100.0
Tasmania	19.9	31.9	20.0	5.9	13.6	..	4.7	4.0	100.0
Northern Territory	14.9	15.4	23.2	11.6	30.3	1.1	..	3.4	100.0
Australian Capital Territory	89.8	3.9	3.2	0.8	1.3	0.2	0.9	..	100.0

.. not applicable

(a) Excludes those employed persons who did not say where they were working (not stated).

(b) 'Other Territories' excluded from analysis due to very small numbers.

Source: Census of Population and Housing, 2006.

people in 2006 but represented 14% of all interstate commuters in 2006. Similarly, the Mining industry accounted for 1% of all employment in 2006, but 3% of all interstate commuters.

The industries with the highest proportion of interstate commuters varied by state and territory. Manufacturing was the most common industry of people who commuted to New South Wales and Victoria. In 2006, 11% of those who

commuted to New South Wales and 16% of those who commuted to Victoria worked in Manufacturing. In contrast, Mining was the most common industry of commuters to South Australia (13%) and Western Australia (19%). This is associated with the large amount of mining activity in these states. People working in the Construction industry accounted for 20% of those who commuted to work in the Northern Territory and 15% of those who commuted to Queensland, reflecting the high levels of construction activity

**8.32 PROPORTION OF EMPLOYED PERSONS WHO COMMUTED TO STATE/TERRITORY, By industry(a)—August 2006**

	PLACE OF WORK(b)								
	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australian Capital Territory	Australia
	%	%	%	%	%	%	%	%	%
Agriculture, forestry and fishing	4.5	3.3	4.4	7.5	4.0	7.2	5.4	0.3	3.5
Mining	1.0	1.4	3.9	13.3	18.5	2.8	12.0	—	3.1
Manufacturing	11.1	15.9	9.3	12.6	7.0	7.5	7.2	4.1	9.7
Electricity, gas, water and waste services	1.3	0.9	0.8	1.3	1.2	2.7	0.3	0.8	1.0
Construction	8.2	6.4	14.7	9.6	17.3	7.0	19.9	5.6	9.4
Wholesale trade	5.4	6.4	4.0	3.6	2.8	2.9	1.2	2.6	4.3
Retail trade	10.1	11.0	8.0	5.4	5.5	7.7	4.0	7.1	8.6
Accommodation and food services	8.3	5.3	9.1	4.3	5.8	5.4	6.8	3.8	6.5
Transport, postal and warehousing	7.9	7.1	6.1	9.3	8.3	17.3	5.4	3.1	6.4
Information media and telecommunications	1.7	2.3	1.9	2.3	1.2	1.8	1.1	2.4	2.0
Financial and insurance services	2.8	3.0	2.2	2.0	1.1	2.8	0.5	1.9	2.3
Rental, hiring and real estate services	1.4	1.1	2.1	0.7	0.9	1.9	0.7	1.2	1.3
Professional, scientific and technical services	5.3	6.8	6.3	5.4	6.4	4.7	3.7	10.3	6.8
Administrative and support services	2.5	3.3	3.4	3.5	2.7	2.5	3.9	2.5	2.9
Public administration and safety	9.4	7.6	5.4	7.1	8.3	5.5	13.3	34.3	14.0
Education and training	5.3	5.4	4.5	3.0	2.1	4.9	4.0	6.8	5.2
Health care and social assistance	8.9	8.5	9.0	5.0	4.2	10.8	6.4	8.2	8.2
Arts and recreation services	2.2	1.6	2.2	2.5	1.0	3.0	2.3	1.4	1.9
Other services	2.7	2.7	2.7	1.9	1.7	2.0	1.9	3.6	2.8
<b>Total(b)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

— nil or rounded to zero (including null cells)

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 (1292.0).

(b) 'Other Territories' excluded from analysis due to very small numbers.

Source: Census of Population and Housing, 2006.

occurring within these two economies with some of this construction associated with developments in mining.

In the Australian Capital Territory, more than one third of commuters (34%) came to work in Public administration and safety, reflecting the fact that this is the largest employing industry in the Australian Capital Territory, accounting for 32% of total employment in 2006.

### In which occupations do commuters work?

In 2006, the occupational distribution of interstate commuters broadly reflected the occupational distribution of all employed people, although people in the higher skilled occupations were slightly more likely to commute than others (table 8.33). Those working in the Professional occupation group accounted for 22% of all interstate commuters, while they represented 21% of all employed. Conversely, Sales workers accounted for 10% of the total employed, but

**8.33 PROPORTION OF EMPLOYED PERSONS WHO COMMUTED TO EACH STATE/TERRITORY, By occupation(a)—August 2006**

	PLACE OF WORK(b)								
	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australian Capital Territory	Australia
	%	%	%	%	%	%	%	%	%
Managers	15.7	15.3	13.0	14.9	11.3	16.6	9.7	17.7	15.2
Professionals	21.1	21.2	19.3	20.3	21.9	28.5	19.7	26.7	22.1
Technicians and trades workers	14.8	13.8	18.7	17.7	25.2	14.3	28.9	11.7	15.8
Community and personal service workers	9.9	8.4	9.1	8.4	6.1	10.4	8.6	8.5	8.9
Clerical and administrative workers	11.5	10.3	10.3	6.1	6.0	7.0	5.9	21.4	12.5
Sales workers	9.3	11.2	8.4	5.9	3.7	6.4	3.1	5.3	7.9
Machinery operators and drivers	7.5	7.8	7.7	12.9	11.4	3.3	9.7	3.6	7.1
Labourers	10.2	11.9	13.5	13.8	14.4	13.5	14.4	5.1	10.5
<b>Total(b)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First Edition (1220.0).

(b) 'Other Territories' excluded from analysis due to very small numbers.  
Source: Census of Population and Housing, 2006.

they only represented 8% of interstate commuters.

For almost all states and territories (except Western Australia and the Northern Territory), people working as Professionals formed the largest single group of interstate commuters, reflecting the fact that this is the largest occupation group among employed people. In particular, for Tasmania and the Australian Capital Territory, Professionals were a particularly important group of commuters, accounting for 29% of people commuting to Tasmania, and

27% of people commuting to the Australian Capital Territory.

However, for those resource rich states experiencing high levels of mining and construction activity, the importance of Technicians and trade workers was apparent. While people in this occupation group accounted for 14% of all employed people in 2006, they represented 29% of workers commuting to the Northern Territory, 25% of those commuting to work in Western Australia, 19% going to Queensland and 18% of those going to South Australia.

## Unemployed people

In the monthly LFS, people aged 15 years and over are considered to be unemployed if they satisfy three criteria: they are not employed; they are available to start work; and they are taking active steps to find work.

Two important measures of unemployment are the number of people unemployed and the unemployment rate. The unemployment rate, defined as the number of unemployed people expressed as a percentage of the labour force, offers an insight into the level of unutilised labour resources within the economy.

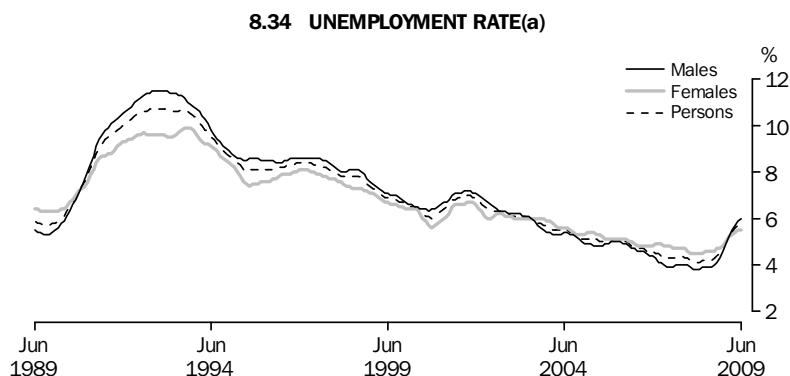
Movements in the unemployment rate over the last 20 years have been dominated by the economic downturn of the early 1990s, the subsequent period of economic recovery and the recent global financial crisis. In trend terms, the unemployment rate peaked at 10.7% in September 1992, before generally falling from the

mid-1990s to 4.1% in February 2008. Since then, the unemployment rate has been steadily increasing (graph 8.34).

For most of the period from June 1989 to June 2009, the male unemployment rate was higher than the female unemployment rate, including from March 2009 to June 2009. However, from June 1989 to September 1990, and from August 2003 to January 2009, the female rate was higher than the male rate.

In conjunction with the decline in the unemployment rate, the number of unemployed people has generally fallen from the levels recorded in the early 1990s although it has increased sharply over the last year.

Over the past five years the proportion of unemployed people who have been in long-term unemployment (i.e. lasting 52 weeks or more) has steadily decreased, from 20% in 2004–05 to 14% in 2008–09 (table 8.35). In contrast, the



(a) Trend estimates.

Source: *Labour Force, Australia* (6202.0).

### 8.35 UNEMPLOYED PERSONS(a), By duration of unemployment

Weeks		2004–2005	2005–2006	2006–2007	2007–2008	2008–2009
Under 26	%	68.3	68.9	70.8	73.3	73.7
Under 8	%	42.8	41.8	43.4	46.3	43.2
8 to under 26	%	25.5	27.1	27.3	27.0	30.5
26 to under 52	%	12.3	12.9	12.4	11.6	12.4
52 and over	%	19.5	18.3	16.9	15.0	13.9
52 to under 104	%	8.0	7.9	7.7	7.4	7.4
104 and over	%	11.4	10.3	9.1	7.6	6.6
Persons	'000	539.3	529.4	492.9	471.7	562.2

(a) Annual averages.

Source: *Labour Force, Australia, Detailed – Electronic Delivery* (6291.0.55.001).

### 8.36 UNEMPLOYED PERSONS, Level of highest non-school qualification and duration of unemployment—July 2008

Level of highest non-school qualification(a)	DURATION OF CURRENT PERIOD OF UNEMPLOYMENT (WEEKS)				Total %	Number '000
	Under 8	8 to 26	26 to 52	52 and over		
	%	%	%	%		
Bachelor degree or above	49.0	26.6	8.9	15.4	100.0	46.9
Advanced diploma or diploma	48.6	30.0	12.2	9.1	100.0	33.3
Certificate III / IV	47.8	26.2	7.3	18.7	100.0	43.8
Certificate I / II(b)	38.8	31.2	12.3	17.7	100.0	29.3
Without non-school qualification	38.0	29.9	17.1	15.0	100.0	261.6
<b>Total(c)</b>	<b>40.8</b>	<b>29.5</b>	<b>14.6</b>	<b>15.1</b>	<b>100.0</b>	<b>422.6</b>

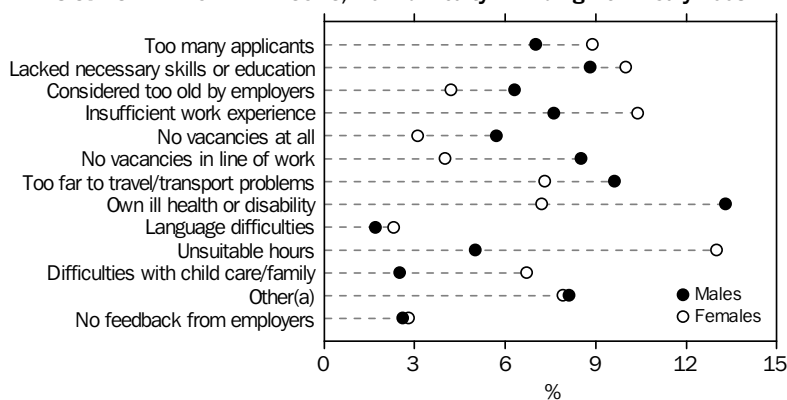
(a) For further details on how level of highest non-school qualification is determined see Education and Work, Australia (6227.0).

(b) Includes 'Certificate not further defined'.

(c) Includes 'Level not determined'.

Source: Job Search Experience, Australia (6222.0).

### 8.37 UNEMPLOYED PERSONS, Main difficulty in finding work—July 2008



(a) Other includes considered too young by employer, difficulties because of ethnic background and other difficulties.

Source: Job Search Experience, Australia (6222.0).

proportion of unemployed people who have been in relatively short-term unemployment (lasting less than 26 weeks) has increased, from 68% in 2004–05 to 74% in 2008–09.

Educational qualifications can have a significant bearing on labour market prospects. Table 8.36 shows the relationship between the level of highest non-school qualifications and the duration of unemployment. At July 2008, the proportion of unemployed people who had been

unemployed for a year or more was highest among those with a Certificate III/IV (19%), compared with those with a Certificate I/II (18%) or Bachelor degree or higher (15%), and lowest among those with an Advanced diploma or diploma (9%).

Unemployed people encounter a variety of difficulties in finding work. Women were more likely than men to report 'Unsuitable hours' as their main difficulty (13% compared with 5%),

'Insufficient work experience' (10% compared with 8%) and 'Difficulties with child care, other family responsibilities' (7% compared with 3%). Men were more likely than women to report their main difficulty as 'Own ill health or disability' (13% compared with 7%), 'Too far to travel/transport problems' (10% compared with 7%) and 'Considered too old by employers' (6% compared with 4%) (graph 8.37).

## Underutilised labour

The extent to which the available supply of labour is utilised is an important social and economic issue. From a social viewpoint, concern centres around the number of people whose aspirations for work are not being met. From an economic perspective, there is interest in measuring the extent to which available labour resources are not being fully utilised within the economy.

Measures such as the unemployment rate and long-term unemployment rate do not reflect the full extent of labour underutilisation. As a result, the ABS also produces labour underutilisation measures based on the number of people whose labour is underutilised (headcount measures), and the number of hours of available labour that are underutilised (volume measures). These measures take into account groups of people such as underemployed workers and discouraged jobseekers.

## Headcount measures of labour underutilisation

The ABS has produced three supplementary measures of labour underutilisation which are

formed by combining information on unemployed people with that of other groups whose labour is underutilised:

*Underemployment rate* – the number of underemployed workers as a proportion of the labour force. Underemployed people comprise part-time workers who would prefer more hours, and are available to work more hours, and full-time workers who worked part-time hours in the reference week for economic reasons.

*Labour force underutilisation rate* – the sum of the unemployed and the underemployed (the underutilised population), expressed as a proportion of the labour force.

*Extended labour force underutilisation rate* – the sum of the unemployed, the underemployed, and two groups of people marginally attached to the labour force, as a proportion of the labour force augmented by those two groups. The two groups of marginally attached people are: people actively looking for work, not available to start work in the reference week, but available to start within four weeks; and discouraged jobseekers. This is the broadest of the ABS measures of underutilised labour.

Table 8.38 shows there were more than half a million (634,500) underemployed people in August 2008. The underemployment rate was higher for women than men (7.6% and 4.0% respectively). This is related to the higher proportion of women who are in part-time employment.

The labour force underutilisation rate was 9.6% in August 2008. Women had a higher labour force

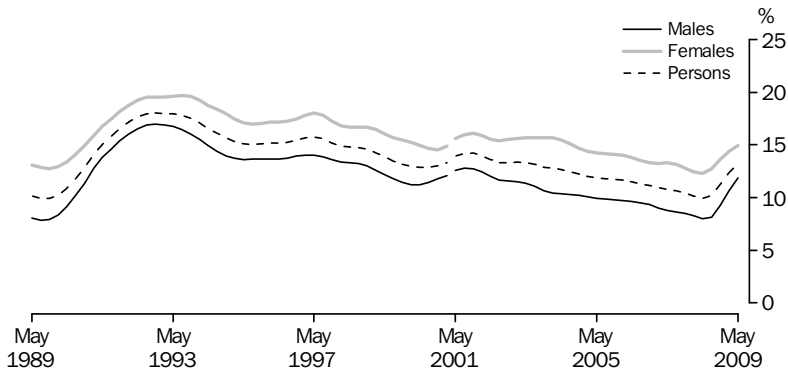
**8.38 LABOUR UNDERUTILISATION—August 2008**

		Males	Females	Persons
Unemployed	'000	218.0	214.5	432.6
Long-term unemployed	'000	30.0	33.5	63.5
Underemployed	'000	246.2	388.3	634.5
Marginally attached to the labour force(a)	'000	58.0	75.3	133.2
Labour underutilisation rates				
Unemployment rate	%	3.6	4.2	3.9
Long-term unemployment rate	%	0.5	0.7	0.6
Underemployment rate	%	4.0	7.6	5.7
Labour force underutilisation rate	%	7.6	11.9	9.6
Extended labour force underutilisation rate	%	8.5	13.2	10.6

(a) Includes only a subset of marginally attached groups.

Source: Australian Labour Market Statistics, (6105.0), Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.003).

**8.39 LABOUR FORCE UNDERUTILISATION RATE(a), By sex**



(a) Trend estimates.

Series break at May 2001.

Source: *Labour Force, Australia* (6202.0).

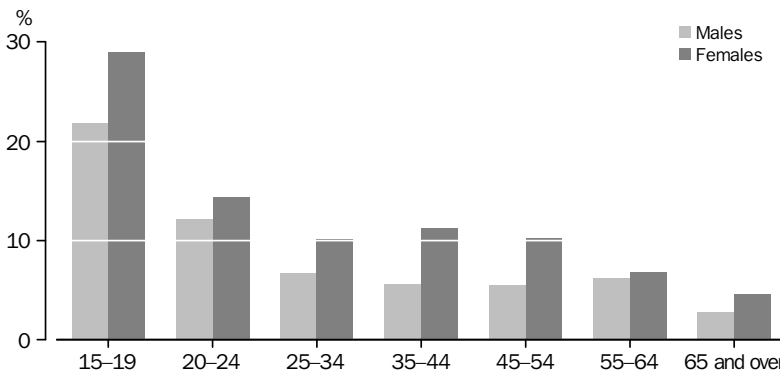
underutilisation rate than men (11.9% compared with 7.6%), reflecting their higher rate of underemployment. Underemployment contributed more people to the total number of people considered to be underutilised (634,500, or 59%) than unemployment (432,600, or 41%).

In August 2008 the extended labour force underutilisation rate was 10.6%. The extended labour force underutilisation rate was higher for women than men (13.2% compared with 8.5%), not only because women had a higher rate of underemployment, but also because women were more likely to be in the marginally attached populations that contribute to this rate.

The trend historical labour force underutilisation rate shows a number of periods in which underutilisation has been an increasing or decreasing concern for the labour market, and these closely align with the peaks and troughs of the economic cycle. Graph 8.39 shows the relatively steep increase in the early 1990s, and a sharp increase from May 2008 to May 2009.

The pattern of labour force underutilisation has been similar since May 1989, with the rate for women consistently higher than for men. The difference was most pronounced in February 2004, with a different of 5.3 percentage points (15.7% for women and 10.4% for men), and least pronounced in November 1992, with a

**8.40 LABOUR FORCE UNDERUTILISATION RATE , By age and sex—August 2008**



Source: *Australian Labour Market Statistics* (6105.0).



difference of 2.6 percentage points (19.6% and 17.0% respectively).

The labour force underutilisation rate decreases with age. As seen in graph 8.40, in August 2008, 15–19 year olds had the highest underutilisation rate (25.4%), followed by 20–24 year olds (13.2%), whereas the lowest rate was for people aged 65 and over (3.4%), a pattern reflected in both the unemployment rate and the underemployment rate. Underutilisation was higher for women than for men in all age groups.

### Volume measures of labour force underutilisation

Labour underutilisation can also be measured in terms of the number of potential hours of labour that are not used. The volume of underutilised labour in the labour force is defined as the number of hours sought by unemployed people plus the preferred number of additional hours of work of underemployed workers. The volume labour force underutilisation rate is the ratio of unutilised hours to the total number of utilised and unutilised hours in the labour force.

Table 8.41 shows volume measures of labour force underutilisation for August 2008. For all three underutilisation measures (i.e. unemployment, underemployment and labour force underutilisation), the volume measures are usually lower than headcount measures, as the average number of potential extra hours of unemployed or underemployed people is generally less than the average hours actually worked by employed people.

In August 2008, the hours sought by unemployed people (13.5 million hours) formed the largest component of the volume of underutilised labour in the labour force (61%), while additional hours preferred by underemployed formed the remainder (8.8 million hours or 39% of the volume of underutilised labour). As with the headcount measure, underemployed hours for women comprised a larger proportion (45%) of female underutilised labour than for men (34%).

### Persons not in the labour force

Persons not in the labour force represent that group of the population who, during the reference week of the ABS monthly LFS, are neither employed nor unemployed (see diagram 8.2). Interest in this group centres primarily on their potential to participate in the labour force.

There were 5.5 million people aged 15 years and over not in the labour force at September 2008 (table 8.42). Some 15% of people (820,300) outside the labour force were marginally attached to the labour force. These people wanted to work and were either actively looking for work but were not available to start work in the reference week, or were not actively looking, but available to start work (in the reference week or within four weeks). Of people not in the labour force, a slightly higher proportion of women were marginally attached compared with men (15% and 14% respectively). Of those marginally attached, a higher proportion of men were actively looking for work compared with women (11% and 7%).

**8.41 VOLUME MEASURES OF LABOUR UNDERUTILISATION—August 2008**

		Males	Females	Persons
Volume of potential labour in the labour force				
Unemployed persons (hours of work sought)	million hours	7.5	6.1	13.5
Underemployed workers (additional hours of work preferred)	million hours	3.8	5.0	8.8
Employed persons (hours worked)(a)	million hours	242.8	152.3	395.1
Total(b)	million hours	254.0	163.5	417.4
Volume measures of labour force underutilisation				
Volume unemployment rate	%	2.9	3.7	3.2
Volume underemployment rate	%	1.5	3.1	2.1
Volume labour force underutilisation rate	%	4.4	6.8	5.3

(a) Actual hours worked in the reference week for underemployed full-time workers and usual hours worked for all other employed persons.

(b) The volume of potential labour in the labour force is equal to the hours of labour sought by unemployed persons, plus the hours of labour preferred by underemployed workers (both utilised and unutilised), plus the hours of labour usually provided by employed persons who are not underemployed.

Source: Australian Labour Market Statistics (6105.0).

## 8.42 LABOUR FORCE STATUS(a)—September 2008

	Males	Females	Persons
	'000	'000	'000
Civilian population aged 15 years and over	8 298.7	8 435.2	16 733.9
Persons in the labour force	6 137.5	5 088.0	11 225.5
Employed	5 886.0	4 856.5	10 742.5
Unemployed	251.5	231.5	483.0
Persons not in the labour force	2 161.2	3 347.2	5 508.4
With marginal attachment to the labour force	304.1	516.1	820.3
Wanted to work and were actively looking for work	33.2	37.0	70.2
Were available to start work within four weeks	23.1	24.5	47.6
Were not available to start work within four weeks	10.1	12.5	22.6
Wanted to work but were not actively looking for work and were available to start work within four weeks	270.9	479.1	750.0
Discouraged jobseekers	34.7	39.3	73.9
Other	236.3	439.9	676.1
Without marginal attachment to the labour force	1 857.1	2 831.0	4 688.1
Wanted to work but were not actively looking for work and were not available to start work within four weeks	119.3	240.7	360.0
Did not want to work	1 575.7	2 451.9	4 027.6
Permanently unable to work	162.1	138.4	300.5

(a) Civilian population aged 15 years and over.

Source: Persons Not in the Labour Force, Australia (6220.0).

In September 2008 there were 73,900 discouraged jobseekers. Discouraged jobseekers are people who are marginally attached to the labour force, want to work and are available to start work, but are not actively looking for work as they believe they will not find a job for labour market related reasons, such as 'No jobs in locality or line of work', 'Considered too old by employers' or 'Lacked the necessary schooling, training, skills or experience'. Of men who were marginally attached to the labour force, 11% were discouraged jobseekers, compared with 8% of women.

## Earnings

Statistics on earnings are used to help evaluate the standard of living of employees and to make policy decisions regarding income redistribution, social welfare, taxation and wage setting.

The ABS concept of earnings is based on the definition adopted by the twelfth International Conference of Labour Statisticians in 1973. Earnings refers to remuneration to employees for time worked or work done, as well as remuneration for time not worked (e.g. paid annual leave).

The ABS produces a range of statistics on earnings paid to employees. The quarterly Survey

of Average Weekly Earnings (AWE) and the two-yearly Survey of Employee Earnings and Hours (EEH) provide a number of statistical measures of the remuneration paid to employees. The EEH survey also provides estimates of earnings for employees covered by each of the pay-setting methods (i.e. awards, collective agreements and individual arrangements). Information regarding pay-setting methods is available in the *Workplace relations* section. The Survey of Employee Earnings, Benefits and Trade Union Membership, which is conducted each August as a supplement to the monthly LFS, also provides information about the earnings of employees.

The quarterly Labour Price Index (LPI) measures changes in wages and salaries, and other 'non-wage' components which contribute to the cost to employers of employing labour (i.e. annual leave, superannuation, payroll tax and workers' compensation). Unlike earnings measures produced from the AWE and EEH surveys, the LPI is unaffected by changes in the quality or quantity of work performed, that is, it is unaffected by changes in the composition of the labour force, hours worked, or changes in characteristics of employees (e.g. work performance). The LPI consists of two components: a wage price index, published quarterly; and a non-wage price index, which is

available for each financial year. Information regarding the LPI is available in the *Prices* chapter.

### Level of earnings

Data on the level of earnings reflect the variations within different population groups, and across industries and occupations. Changes in the level of earnings are also of interest in reflecting the strength of labour demand and supply.

The AWE survey provides an estimate of the gross weekly earnings paid to employees by measuring earnings during a one-week reference period in the middle month of a quarter (excluding irregular payments not related to the reference period). Data are collected from the payroll records of a sample of employers.

The AWE survey provides three types of earnings measures. The first is average weekly ordinary time earnings (commonly referred to as AWOTE) for full-time adult employees, which relates to that part of total earnings attributable to award, standard or agreed hours of work. A second measure is full-time adult total earnings, which includes both ordinary time and overtime pay. A third measure is total earnings for all employees

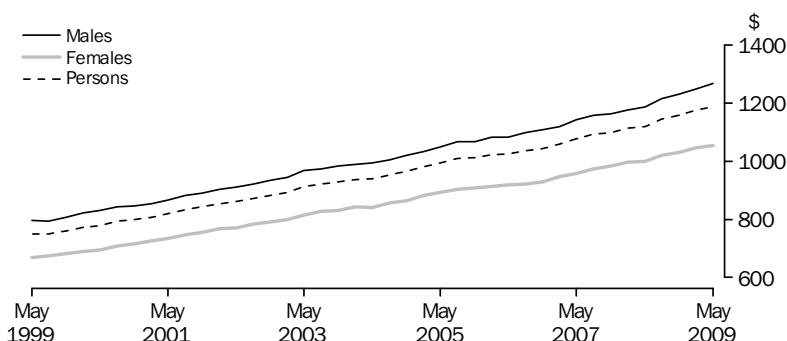
(including full-time and part-time, adult and junior).

Graph 8.43 shows AWOTE from May 1999 to May 2009. Over the ten-year period, AWOTE for full-time adult male employees increased from \$796 to \$1,268 (or 59%), while for full-time adult female employees it increased from \$668 to \$1,054 (or 58%).

In May 2009 the difference between male and female average weekly earnings was lowest for full-time adult AWOTE (where female earnings were 83% of the male figure of \$1,268) and highest for all employee total earnings (where female earnings were 65% of the male figure of \$1,110) (table 8.44). The latter difference reflects the inclusion of part-time employees (a higher proportion of female employees work part time) and the inclusion of overtime pay (of which men earn more than women). In May 2009, 44% of female employees worked part time compared with 16% of male employees.

Table 8.45 presents AWOTE for full-time adult men and women by states and territories in May 2009. The highest weekly earnings for men and women were in the Australian Capital

**8.43 AVERAGE WEEKLY ORDINARY TIME EARNINGS(a)**



(a) For full-time adult employees.

Source: *Average Weekly Earnings, Australia, Spreadsheets (6302.0)*.

**8.44 AVERAGE WEEKLY EARNINGS—May 2009**

	Males	Females	Persons
	\$	\$	\$
Full-time adult ordinary time earnings	1 267.7	1 053.7	1 187.8
Full-time adult total earnings	1 334.3	1 068.1	1 234.9
All employees total earnings	1 110.3	726.6	918.6

Source: *Average Weekly Earnings, Australia (6302.0)*.

### 8.45 AVERAGE WEEKLY EARNINGS(a), By state and territory—May 2009

	Males	Females	Persons
	\$	\$	\$
New South Wales	1 280.1	1 085.4	1 206.5
Victoria	1 239.5	1 041.9	1 165.9
Queensland	1 241.4	1 004.6	1 152.9
South Australia	1 180.4	1 018.6	1 118.5
Western Australia	1 401.3	1 062.6	1 287.0
Tasmania	1 037.4	933.5	1 001.7
Northern Territory	1 247.5	1 037.2	1 150.9
Australian Capital Territory	1 407.7	1 256.3	1 340.3
<b>Australia</b>	<b>1 267.7</b>	<b>1 053.7</b>	<b>1 187.8</b>

(a) Full-time adult ordinary time earnings.  
Source: Average Weekly Earnings, Australia (6302.0).

Territory (\$1,408 for men and \$1,256 for women). The lowest weekly earnings were in Tasmania for both men (\$1,037) and women (\$934).

In May 2009, the Mining industry recorded the highest AWOTE for full-time adults (\$1,950 for men and \$1,528 for women) (graph 8.46). The industries with the lowest AWOTE for full-time adults were Accommodation and food services (\$922 for men and \$790 for women) and Retail trade (\$950 and \$822 respectively).

AWOTE for full-time adult women was less than for men in all industries. The largest difference between the earnings of full-time adult males and females occurred in Rental, hiring and real estate

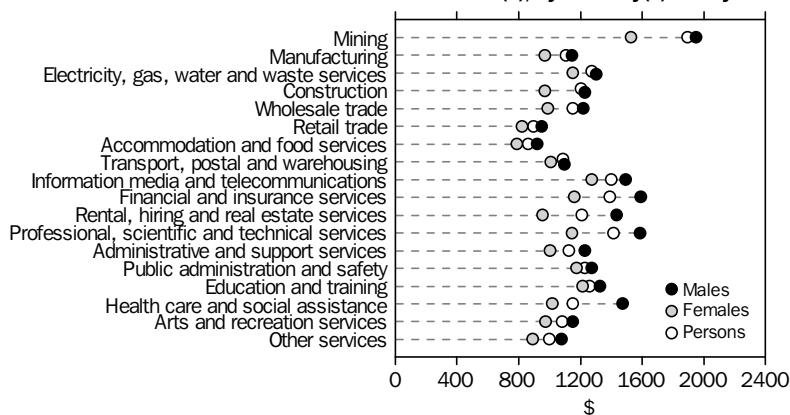
services, with females earning 67% of males. The difference in earnings was smallest in Transport, postal and warehousing (the average earnings of full-time adult females were 92% of full-time adult males).

Data on earnings are also available from the EEH survey. This survey provides additional information on employee characteristics such as occupation. Average weekly ordinary time cash earnings (i.e. including amounts salary sacrificed) for full-time adult employees by occupation for August 2008 are shown in graph 8.47. For men and women, Labourers recorded the lowest average weekly ordinary time cash earnings of all the occupation groups (\$866 for men and \$747 for women). The occupation group with the highest weekly earnings was Managers (\$1,886 for men and \$1,494 for women).

Men had higher average weekly ordinary time cash earnings than women in each major occupation group. For full-time adult employees, the proportional difference between average weekly ordinary time cash earnings for men and women was smallest for Machinery operators and drivers (average earnings of women were 93% of those of men) and greatest for Managers and Community and personal service workers (both 79%).

The Survey of Employee Earnings, Benefits and Trade Union Membership provides data on

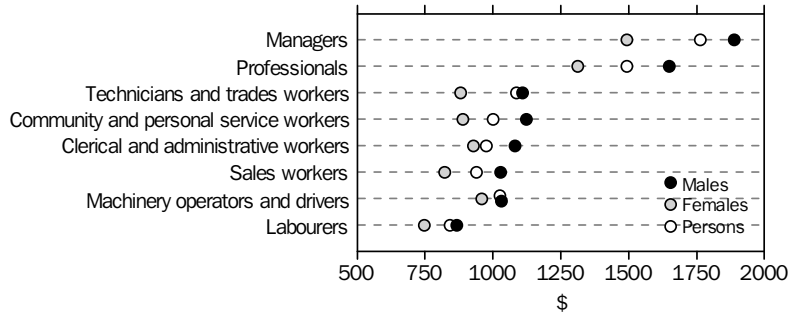
### 8.46 AVERAGE WEEKLY ORDINARY TIME EARNINGS(a), By industry(b) —May 2009



(a) For full-time adult employees.  
(b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 (1292.0).

Source: Average Weekly Earnings, Australia (6302.0).

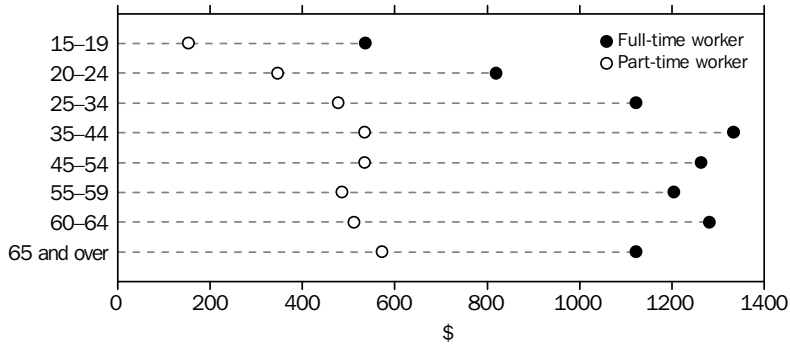
**8.47 AVERAGE WEEKLY ORDINARY TIME CASH EARNINGS(a), By occupation(b)—August 2008**



(a) For full-time adult employees.  
 (b) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First Edition (1220.0).

Source: ABS data available on request, *Survey of Employee Earnings and Hours* (6306.0).

**8.48 AVERAGE WEEKLY EARNINGS(a), By age group —August 2008**



(a) In all jobs.

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia* (6310.0).

average weekly earnings across a range of socio-demographic characteristics.

In August 2008, average weekly earnings of full-time workers was more than double that of part-time workers across all age groups. Full-time workers earned, on average, \$1,163 per week in all jobs, compared with \$428 for part-time workers. Workers with the lowest average weekly earnings were those aged 15–19 years (\$536 for full-time workers and \$154 for part-time workers) while those with the highest average weekly earnings were aged 35–44 years (\$1,333 for full-time workers and \$535 for part-time workers) (graph 8.48).

## Workplace relations

Workplace relations can be regarded as the relationships and interactions in the labour market between employers and employees (and their representatives), and the intervention in these relations by governments, government agencies and tribunals (e.g. Fair Work Australia).

Historically, governments have regulated the Australian labour market to varying degrees. Changes to the structure or processes underpinning the workplace relations environment have generally followed changes in governments, and periods of social or economic change. For most of the last century, employee-employer relationships were shaped by highly centralised Commonwealth and state

tribunal-based systems of conciliation and arbitration. However, since the late 1980s, the workplace relations environment in Australia has undergone significant change and is now characterised by more decentralised arrangements.

The field of workplace relations is complex and diverse and, for statistical purposes, is not easily measured. The ABS collects information on a number of topics to provide an insight into the state of the workplace relations environment, including the methods used for setting pay (i.e. awards, collective agreements and individual arrangements), industrial disputes, and trade union membership.

### How pay is set

Information on the methods of setting the main part of employees' pay is collected in the EEH survey. Three different methods of setting pay are identified – awards, collective agreements, and individual arrangements.

*Awards or pay scale only* – awards are legally enforceable determinations made by federal or state industrial tribunals that set the terms of employment (pay and/or conditions), usually in a particular industry or occupation. From March 2006, pay rates for employees in the federal jurisdiction who were previously paid according to an award are now contained within the Australian Pay and Classification Scales (Pay Scales). An award or pay scale may be the sole mechanism used to set the pay and/or conditions for an employee or group of employees, or alternatively may be used in conjunction with an

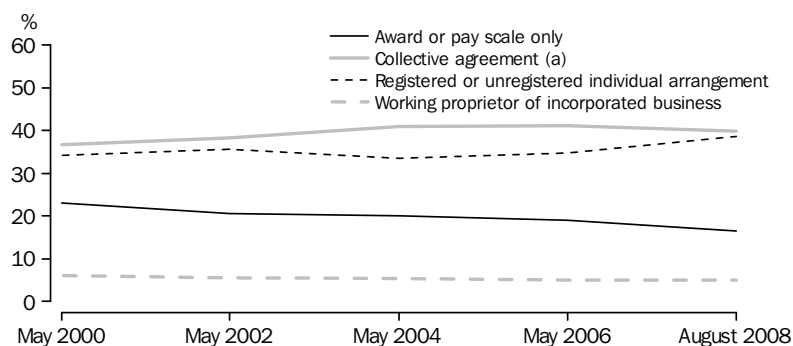
individual or collective agreement. Employees are classified to the award or pay scale only category if they were paid at the rate of pay specified in the award pay scale. If an employee was paid more than the rate of pay specified in the award or pay scale they are included in the individual arrangement category.

*Collective agreements*, which include enterprise and workplace agreements, are agreements between an employer (or group of employers) and a group of employees (or one or more unions or employee associations representing employees). Collective agreements set the terms of employment, and are usually registered with a state or federal industrial tribunal or authority.

*Individual arrangements* are arrangements between an employer and an individual employee for the terms of employment (pay and/or conditions) for the employee. Employees whose pay is set by an individual arrangement include those whose pay is set by an individual contract, registered individual agreement (e.g. an Australian Workplace Agreement), common law contract and employees receiving over award payments. Working proprietors of incorporated businesses are included in the individual arrangements category within EEH.

In August 2008, 40% of employees had their pay set by collective agreement, 39% by a registered or unregistered individual arrangement and 17% of employees had their pay set by award or pay scale only. Working proprietors of incorporated businesses accounted for 5% of employees (graph 8.49).

8.49 METHODS OF SETTING PAY



(a) Includes registered and unregistered collective agreements.

Source: *Employee Earnings and Hours, Australia* (6306.0).

### 8.50 METHODS OF SETTING PAY, Proportion of employees, By sector—August 2008

	COLLECTIVE AGREEMENT			INDIVIDUAL ARRANGEMENT				All methods of setting pay %
	Award or pay scale only %	Registered	Unregistered	Registered	Unregistered	Working Proprietor of Incorporated Business	Total	
		%		%		%		
<b>MALES</b>								
Private Sector	15.7	25.2	*0.6	2.7	47.5	8.3	58.6	100.0
Public Sector	*0.3	94.5	0.9	1.2	3.1	. .	4.3	100.0
All Sectors	13.3	35.9	0.6	2.5	40.7	7.0	50.2	100.0
<b>FEMALES</b>								
Private Sector	25.8	26.1	0.8	2.0	41.5	3.8	47.3	100.0
Public Sector	*0.5	97.0	*0.3	0.9	1.3	. .	2.2	100.0
All Sectors	19.9	42.6	0.7	1.8	32.2	2.9	36.9	100.0
<b>PERSONS</b>								
Private Sector	20.4	25.6	0.7	2.4	44.7	6.2	53.3	100.0
Public Sector	*0.4	96.0	0.5	1.1	2.0	. .	3.1	100.0
<b>All Sectors</b>	<b>16.5</b>	<b>39.2</b>	<b>0.6</b>	<b>2.2</b>	<b>36.5</b>	<b>5.0</b>	<b>43.7</b>	<b>100.0</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution  
 . . not applicable

Source: Employee Earnings and Hours, Australia, August 2008 (6306.0).

### 8.51 METHODS OF SETTING PAY, Proportion of employees, By occupation(a)—August 2008

	Award or pay scale only %	INDIVIDUAL ARRANGEMENT					All methods of setting pay %
		Collective agreement(b)	Registered	Working proprietor or of incorporated business	Total		
			unregistered			%	
Managers	2.3	19.8	59.0	18.9	77.9	100.0	
Professionals	4.2	52.4	37.7	5.6	43.3	100.0	
Technicians and trades workers	18.4	28.6	45.7	7.3	53.0	100.0	
Community and personal service workers	31.7	46.6	20.9	*0.8	21.7	100.0	
Clerical and administrative workers	10.7	38.6	46.8	3.9	50.7	100.0	
Sales workers	30.5	36.5	31.7	1.3	33.0	100.0	
Machinery operators and drivers	12.7	44.8	39.0	3.5	42.5	100.0	
Labourers	29.8	41.0	27.8	*1.4	29.2	100.0	
<b>Total all occupations</b>	<b>16.5</b>	<b>39.8</b>	<b>38.7</b>	<b>5.0</b>	<b>43.7</b>	<b>100.0</b>	

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First edition (1220.0).

(b) Includes registered and unregistered collective agreements.

Source: Employee Earnings and Hours, Australia, August 2008 (6306.0).

The proportion of employees who had their pay set by an award or pay scale decreased from 19% in May 2006 to 17% in August 2008. The coverage of this method of setting pay has declined over the last 8 years, from 23% in May 2000 to 17% in August 2008. For registered and unregistered individual arrangements, there was a 4 percentage point increase between May 2006 (35%) and August 2008 (39%). The proportion of employees whose pay was set by a collective agreement had a 1 percentage point decrease between May 2006 (41%) and May 2008 (40%).

In August 2008 nearly half (45%) of employees in the private sector had their pay set by an unregistered individual arrangement (i.e. which was not registered with a federal or state tribunal)

and a further 26% of employees in the private sector had their pay set by a registered collective agreement. In contrast, almost all (96%) of the public sector employees had their pay set by a registered collective agreement (table 8.50).

The proportion of female employees who had their pay set by award or pay scale only was 20%, compared with 13% of male employees. Collective agreements were also a more common method of setting pay for female employees (43%) than for male employees (37%), while registered or unregistered individual arrangements were more common amongst male employees than female employees (43% compared with 34%). Male employees were twice as likely (8%) to be working proprietors of

### 8.52 METHODS OF SETTING PAY, By industry(a)—August 2008

	<i>Award or pay scale only</i>	<i>Collective agreement(b)</i>	INDIVIDUAL ARRANGEMENT		<i>Total</i>	<i>All methods of setting pay</i>
			<i>Registered or unregistered</i>	<i>Working proprietor or of incorporated business</i>		
	%	%	%	%	%	%
Mining	*1.2	30.9	66.1	1.8	67.9	100.0
Manufacturing	12.2	29.9	54.3	3.6	57.9	100.0
Electricity, gas, water and waste services	*5.4	67.5	25.8	1.2	27.0	100.0
Construction	9.1	25.6	49.1	16.1	65.3	100.0
Wholesale trade	9.0	10.1	75.5	5.3	80.8	100.0
Retail trade	28.9	36.2	31.1	3.8	34.9	100.0
Accommodation and food services	50.3	19.3	28.4	2.1	30.5	100.0
Transport, postal and warehousing	8.3	48.9	35.9	6.9	42.8	100.0
Information media and telecommunications	5.6	31.1	59.2	4.1	63.3	100.0
Financial and insurance services	*2.2	38.9	53.0	6.0	59.0	100.0
Rental, hiring and real estate services	20.2	*11.9	57.5	10.4	67.9	100.0
Professional, scientific and technical services	5.4	8.6	70.9	15.0	85.9	100.0
Administrative and support services	33.9	15.7	48.0	2.5	50.5	100.0
Public administration and safety	*3.6	88.2	7.9	*0.3	8.2	100.0
Education and training	*8.4	81.2	9.7	*0.7	10.4	100.0
Health care and social assistance	17.2	64.5	16.2	2.1	18.2	100.0
Arts and recreation services	14.2	37.9	43.6	4.3	47.9	100.0
Other services	25.4	7.3	58.2	9.1	67.3	100.0
<b>Total all industries</b>	<b>16.5</b>	<b>39.8</b>	<b>38.7</b>	<b>5.0</b>	<b>43.7</b>	<b>100.0</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 (1292.0).

(b) Includes registered and unregistered collective agreements.

Source: Employee Earnings and Hours, Australia, August 2008 (6306.0).



incorporated businesses than female employees (4%).

The use of the various methods of setting pay differs between occupation groups (table 8.51). Collective agreements were most common for Professionals (52%) and least common for Managers (20%). Registered or unregistered individual arrangements were the most common method of setting pay for Managers (59%), Clerical and administrative workers (47%) and Technicians and trades workers (46%). Award or pay scale only as a method of setting pay was highest for Community and personal service workers (32%), Sales workers (31%) and Labourers (30%).

The industries with the highest proportion of employees with their pay set by collective agreements were Public administration and safety (88%) and Education and training (81%) (table 8.52). This is consistent with the high proportion of employees in the public sector who had their pay set by collective agreements (96%). With one in two employees having their pay set by award or pay scale only, Accommodation and food services has the highest proportion of employees (50%) for this method of setting pay. Registered and unregistered individual arrangements were most common in the Wholesale trade (76%) and Professional, scientific and technical services (71%) industries and least common in Public administration and safety (8%) and Education and training (10%).

## Industrial disputes

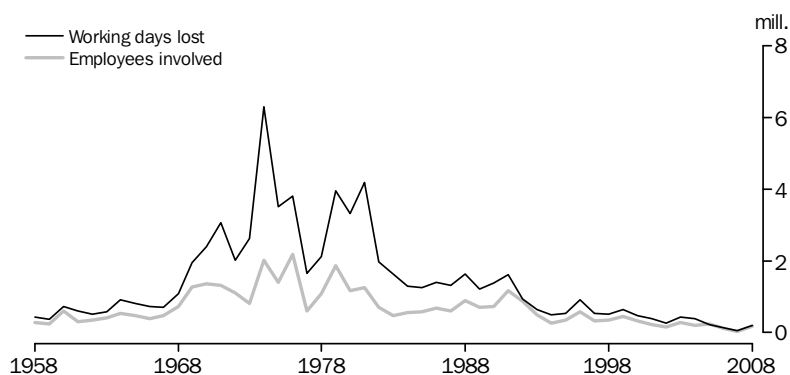
The ABS defines an industrial dispute as a disagreement over an issue or group of issues between an employer and its employees, which results in employees ceasing work. Industrial disputes comprise: strikes, which are a withdrawal from work by a group of employees; and lockouts, which are a refusal by an employer or group of employers to permit some or all of their employees to work.

This section presents statistics on industrial disputes involving work stoppages of ten or more working days lost. 'Working days lost' refers to working days lost by employees directly and indirectly involved in the dispute. Directly involved employees are those who actually participated in the dispute. Indirectly involved employees are those who were stood down at the location where the stoppage occurred, but who were not themselves parties to the dispute.

Graph 8.53 shows that the number of working days lost per year, and the number of employees involved, have fluctuated from year to year, but have decreased over the last two decades.

There were 196,500 working days lost due to industrial disputes in 2008, an increase from the 49,700 working days lost in 2007 (table 8.54). There were also more disputes in 2008 than in 2007 (177 compared with 135). The average number of working days lost per dispute also increased (from 368 to 1,110). From 2007 to 2008, the number of employees involved in industrial disputes increased from 36,000 to 172,900.

**8.53 INDUSTRIAL DISPUTES**



Source: ABS data available on request, Industrial Disputes collection.

### 8.54 INDUSTRIAL DISPUTES

Disputes	Employees involved	Working days	
		lost	lost per dispute
no.	'000	'000	no.
2004	692	379.8	549
2005	472	228.3	484
2006	202	132.6	656
2007	135	49.7	368
2008	177	196.5	1 110

Source: ABS data available on request, Industrial Disputes collection.

Table 8.55 shows that from 2007 to 2008, the number of working days lost per thousand employees increased from 5 to 21. All industries recorded increases between 2007 and 2008, except for Coal mining and Other manufacturing. The Education and Health and community services industry grouping recorded the largest increase in working days lost per thousand employees between 2007 and 2008 (from 11 to 76).

### Trade union membership

A trade union is defined as an organisation, consisting predominantly of employees, whose principal activities include the negotiation of rates of pay and conditions of employment for its members. In August 2008 there were 1.8 million

employees who were trade union members. This represents 19% of all employees. Table 8.56 shows in 2008 the public sector had a higher proportion of employees with trade union membership than the private sector (42% compared with 14%).

Graph 8.57 shows that the rate of trade union membership peaked at 61% in 1962, before declining rapidly between 1962 and 1970. This period was followed by increasing membership during the 1970s. Since then the proportion of employees who were trade union members has steadily declined.

Some of the factors contributing to the decline in trade union membership include the changing workplace relations environment and the changing industry composition of the workforce, for example, the emergence of industries that are not highly unionised. Another factor in the decline in trade union membership is the increase in part-time and casual employment. These types of employment have historically been less unionised than full-time employment.

Graph 8.58 shows that the level of trade union membership varied considerably across industries, with the Education and training (40%), Public administration and safety (34%), Electricity, gas, water and waste services (32%), and Transport, postal and warehousing (31%)

### 8.55 WORKING DAYS LOST PER THOUSAND EMPLOYEES, By selected industries(a)

	2004	2005	2006	2007	2008
	no.	no.	no.	no.	no.
Mining					
Coal	294.5	500.1	97.1	139.4	52.7
Other	117.5	27.2	13.5	0.5	2.3
Manufacturing					
Metal products; Machinery and equipment	71.7	103.7	102.1	20.3	30.1
Other	34.1	27.7	12.9	11.9	6.6
Construction	223.7	153.8	24.0	10.1	19.9
Transport and storage; Communication services	37.9	20.0	15.8	3.2	5.3
Education; Health and community services	81.8	28.9	29.2	11.4	75.7
Other industries(b)	10.0	2.2	1.7	0.4	3.4
<b>All industries</b>	<b>45.5</b>	<b>26.4</b>	<b>14.9</b>	<b>5.4</b>	<b>21.0</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (1292.0).

(b) Includes: Agriculture, forestry and fishing; Electricity, gas and water supply; Wholesale trade; Retail trade; Accommodation, cafes and restaurants; Finance and insurance; Property and business services; Government administration and defence; Cultural and recreational services; and Personal and other services.

Source: ABS data available on request, Industrial Disputes collection.

### 8.56 TRADE UNION MEMBERSHIP—August 2008

	Males	Females	Persons
<i>Sector</i>	<i>%</i>	<i>%</i>	<i>%</i>
Public	43.9	40.6	41.9
Private	14.8	11.9	13.6
<b>All sectors</b>	<b>19.0</b>	<b>18.8</b>	<b>18.9</b>

Source: Employee Earnings, Benefits and Trade Union Membership, Australia (6310.0).

industries being the most unionised in 2008. The least unionised industries were Professional, scientific and technical services and Agriculture, forestry and fishing, both at 4%. Rental, hiring and real estate services, Wholesale trade and

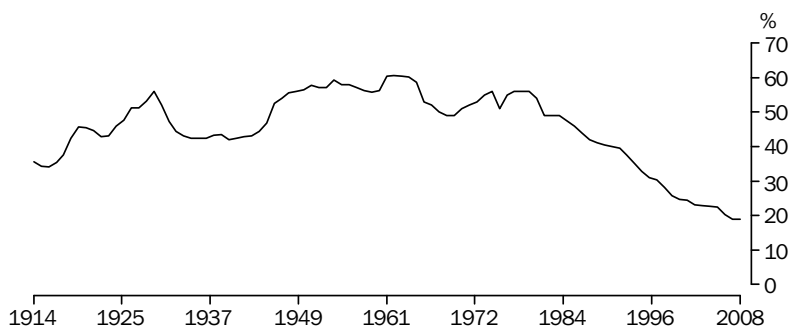
Accommodation and food services were the next least unionised industries, all at 5%.

Graph 8.59 shows that the level of trade union membership also varied considerably across occupation groups, with Machinery operators and drivers (28%), Professionals (25%), and Community and personal service workers (23%) being the most unionised in 2008. The least unionised occupation group was Managers at 9%.

### Job vacancies

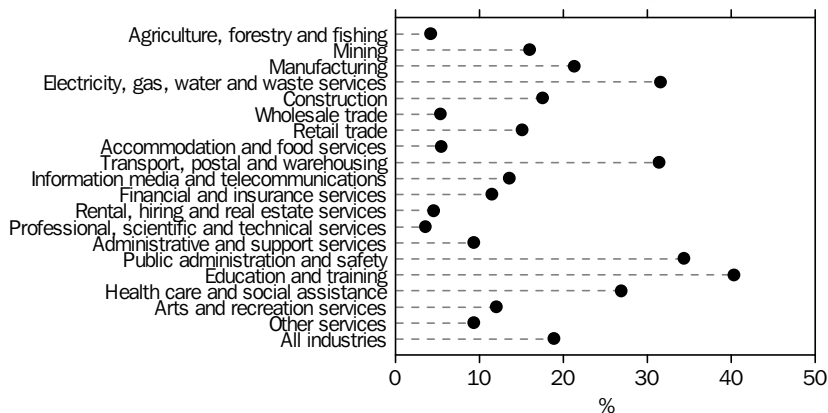
The ABS defines a job vacancy as a job available for immediate filling on the survey reference date

8.57 TRADE UNION MEMBERSHIP, Proportion of employees who were trade union members



Source: Employee Earnings, Benefits and Trade Union Membership, Australia (6310.0); Trade Union Members, Australia (6325.0); Labour Report, 1912–1958 (microfiche no. 61–002).

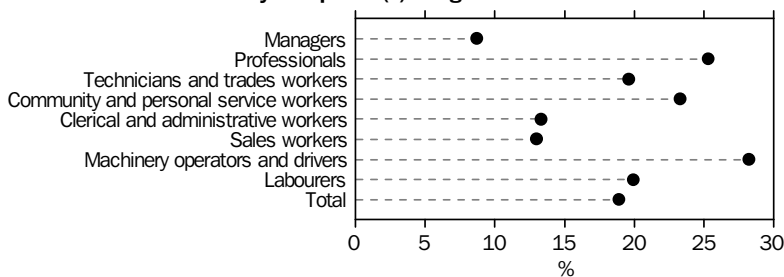
8.58 EMPLOYEES WHO WERE TRADE UNION MEMBERS, By industry(a)—August 2008



(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 (1292.0).

Source: Employee Earnings, Benefits and Trade Union Membership, Australia, August 2008, Spreadsheets (6310.0).

**8.59 EMPLOYEES WHO WERE TRADE UNION MEMBERS,  
By occupation(a)—August 2008**



(a) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First edition (1220.0).

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia, August 2008, Spreadsheets* (6310.0).

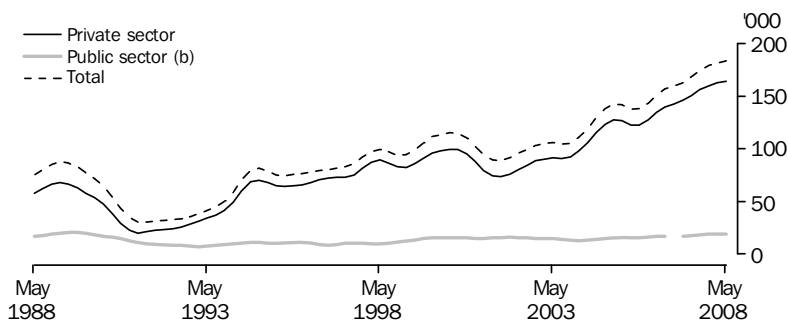
and for which recruitment action has been taken by the employer. Job vacancy statistics can be used to assess changes in the demand for labour, and are considered to be a leading indicator of employment.

Graph 8.60 presents quarterly trend estimates of job vacancies for the period May 1988 to May 2008. It shows that the number of job vacancies decreased to 30,300 in August 1991, reflecting the labour market downturn in the early 1990s. The number of job vacancies then trended upwards to a high of 115,100 in May 2000, before falling to

88,900 in November 2001. Job vacancies then increased again, reaching a new record high of 183,600 in May 2008.

The number of job vacancies in May 2008 was highest in the Property and business services industry (50,200) followed by Retail trade (25,700), Manufacturing (18,500) and Health and community services (17,000) industries. Property and business services has had the highest number of job vacancies in May in each of the past five years (table 8.61).

**8.60 JOB VACANCIES(a)**



(a) Trend estimates. (b) Break in series between November 2006 and February 2007, see paragraphs 21 and 22 of the explanatory notes in 'Job Vacancies, Australia' (6354.0).

Source: *Job Vacancies, Australia* (6354.0).

### 8.61 JOB VACANCIES, By industry(a)—May

	2004	2005	2006	2007	2008
	'000	'000	'000	'000	'000
Mining	2.0	2.7	3.9	5.0	6.0
Manufacturing	16.1	14.0	13.0	16.0	18.5
Electricity, gas and water supply	0.4	1.0	0.9	0.9	1.2
Construction	*7.1	*9.7	9.6	7.2	9.4
Wholesale trade	7.3	*6.6	11.6	7.6	10.9
Retail trade	21.8	21.1	21.6	28.5	25.7
Accommodation, cafes and restaurants	*3.8	6.3	6.7	9.9	6.4
Transport and storage	*3.0	*4.5	3.1	4.2	4.6
Communication services	0.7	0.6	*1.1	*1.8	2.5
Finance and insurance	4.7	7.4	8.1	9.4	8.9
Property and business services	27.7	31.9	35.3	40.5	50.2
Government administration and defence	4.9	6.3	8.7	7.8	7.1
Education	4.5	4.1	3.6	4.3	5.5
Health and community services	12.1	14.0	14.9	14.2	17.0
Cultural and recreational services	*2.0	3.7	3.9	3.4	*3.7
Personal and other services	*4.6	*4.0	*5.8	*5.9	*6.9
<b>All industries</b>	<b>122.7</b>	<b>137.8</b>	<b>152.0</b>	<b>166.5</b>	<b>184.4</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (1292.0).

Source: Job Vacancies, Australia, Spreadsheets (6354.0).

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- Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 Edition* (1292.0)
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- Job Vacancies, Australia* (6354.0)
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Australian Industrial Relations Commission, last viewed November 2009, <<http://www.airc.gov.au>>



## INCOME AND WELFARE

The economic wellbeing or standard of living of individuals is largely dependent on the economic and social resources available to provide for their consumption of goods and services and for participation in society. Such resources may be in the form of income received from wages and salaries, investments, income support from government, and the like. However, income does not always accurately indicate command over goods and services, particularly when income is variable or expenditure can be financed through running down assets or acquiring debts. Other resources can also contribute to the level of consumption of goods and services, including the resources of government and welfare organisations which provide services such as aged care, respite care and child care, and the resources of family and friends who provide assistance when needed.

Government programs aim to support Australians to achieve social and economic outcomes and to participate in society. Such programs provide income support for the retired, people with disabilities, carers, unemployed people, students, and families with children. Others provide income support for other special groups, such as war veterans, and war widows and their families. In addition to providing income security and supporting families with children, government programs help people to meet specific needs. For example, assistance is also provided for a range of goods and services through pensioner concession and health cards, and other types of programs such as those which aim to provide assistance with employment, and advocacy for people with disabilities.

This chapter provides information on the levels and sources of income of Australia's population, on the levels and patterns of expenditure on goods and services, and on the levels of wealth. Information is also provided on the major income and community support programs of the Australian Government, describing the eligibility requirements, number of beneficiaries and government expenditure on these programs.

This chapter contains the article *Indigenous Disadvantage and Selected Measures of Wellbeing*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Household income, expenditure and wealth

### Income

This section provides indicators of the level and distribution of after-tax (disposable) household income, after adjusting for household size and composition. The estimates of disposable income are derived from the gross income data collected by the Australian Bureau of Statistics (ABS), in the 2007–08 Survey of Income and Housing, and deducting estimates of income tax liability and the Medicare levy.

Gross income includes:

- wages and salaries, and other receipts from employment including income provided as part of salary sacrifice and/or salary packaging arrangements
- profit or loss from own unincorporated business (including partnerships)
- net investment income (in the form of interest, rent, dividends, royalties)
- government pensions and allowances
- private transfers in the form of superannuation, child support, workers' compensation and financial support from members not living in the household.

While income is usually received by individuals, it is normally shared between partners in a couple relationship and with dependent children. To a lesser degree, there may be sharing with other members of the household. Even when there is no transfer of income between members of a household, nor provision of free or cheap accommodation, members are still likely to benefit from the economies of scale that arise from the sharing of dwellings. The income measures shown in this section therefore relate to household income.

However, larger households normally require a greater level of income to maintain the same material standard of living as smaller households, and the needs of adults are normally greater than the needs of children. The income estimates are therefore adjusted by equivalence factors to standardise the income estimates with respect to household size and composition, while taking into account the economies of scale that arise from the sharing of dwellings. The equivalised disposable income estimate for any household in

this section is expressed as the amount of disposable income that a single person household would require to maintain the same standard of living as the household in question, regardless of the size or composition of the latter.

To calculate the equivalised disposable income of a household, each member of the household is allocated 'equivalence points'. Taking the first adult in the household as having a weight of 1 point, each additional person aged 15 years or older is allocated 0.5 of a point, and each child under the age of 15 years is allocated 0.3 of a point. Equivalised disposable household income is then derived by dividing disposable household income by a factor equal to the sum of the 'equivalence points' allocated to the household members. The equivalised disposable income of a single person household is the same as its unequivalised disposable income.

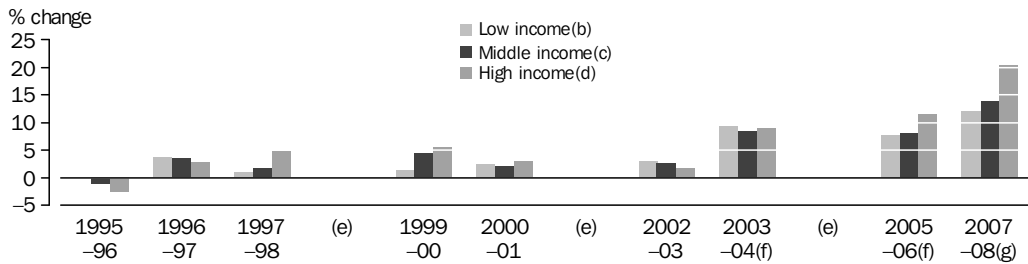
In 2007–08, average (mean) equivalised disposable household income for all persons living in private dwellings (i.e. the income that a single person household would require to maintain the same standard of living as the average person living in all private dwellings in Australia) was \$811 per week. There were approximately 20.6 million people living in private dwellings.

In 2007–08, improvements were made to income measures resulting in an increase of 5.5% in mean equivalised disposable income, compared with the previous basis. Estimates for 2003–04 and 2005–06 were recompiled on the new basis where data were available to support the calculation. However comparisons with these periods, and with earlier periods, will be affected by the changed basis introduced in 2007–08.

After adjusting for changes in prices, average real equivalised disposable household income in 2007–08 (\$811 per week) was 16% higher than in 2005–06 (\$699 per week) and 58% higher than in 1994–95 (\$512 per week).

For low income people (represented by the 20% of people with household income between the bottom 10% and bottom 30% of incomes), average equivalised disposable household income grew by 12% (\$44 per week) from 2005–06 to 2007–08. A 14% increase was recorded for middle income people and a 20% increase for high income people (graph 9.1). Over the period from 1994–95 to 2007–08 there was a 48% increase in

## 9.1 CHANGES IN MEAN REAL EQUIVALISED DISPOSABLE HOUSEHOLD INCOME(a)



(a) Change from previous survey year. (b) Persons in the second and third income deciles.

(c) Persons in the middle income quintile. (d) Persons in the highest income quintile.

(e) No survey was conducted in 1998-99, 2001-02 or 2004-05.

(f) 2003-04 and 2005-06 data have been recomputed to reflect new treatments of income, where data are available to support this calculation

(g) Estimates for 2007-08 are not directly comparable with estimates for previous cycles due to the improvements made to measuring income introduced in the 2007-08 cycle. Estimates for 2003-04 and 2005-06 have been recomputed to reflect the new measures of income, however not all components introduced are available to present the years on a comparable basis.

Source: Household Income and Income Distribution, Australia (6523.0).

## 9.2 HOUSEHOLD CHARACTERISTICS, By income group—2007-08

	Low income(a)	Middle income(b)	High income(c)	All households
Mean equivalised disposable household income per week	\$ 409	692	1 646	811
Has PSI of wages and salaries(d)	% 30.7	78.7	87.4	61.5
Has PSI of government pensions and allowances(d)	% 55.1	2.9	—	23.2
Owns home without a mortgage	% 45.8	30.3	26.9	33.2
Owns home with a mortgage	% 20.1	39.5	48.9	35.1
Rents from state/territory housing authority	% 6.5	*1.0	**0.2	4.5
Rents from private landlord	% 23.9	26.2	21.5	23.9
Average number of persons in the household	no. 2.6	2.9	2.5	2.6
Average number of employed persons in the household	no. 0.7	1.6	1.9	1.3
Average age of household reference person	years 56.4	47.2	44.8	49.9

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use  
— nil or rounded to zero (including null cells)

(a) Persons in the second and third income deciles.

(b) Persons in the middle income quintile.

(c) Persons in the highest income quintile.

(d) PSI = Principal source of income.

Source: Household Income and Income Distribution, Australia, 2007-08 (6523.0).

the average real incomes of low income people compared with 52% for middle income people and 70% for high income people.

### Household characteristics

Households with different characteristics tend to have different income levels, as shown in table 9.2. Wages and salaries were the principal source of income for households with middle and high income levels in 2007-08, while government pensions and allowances dominated for low income households. However, low income households had the highest incidence of full ownership of their home, reflecting the high

proportion of older people in the low income category.

Middle income households contained more people on average than high income households (2.9 compared with 2.5) but contained considerably fewer employed persons (1.6 compared with 1.9). In part, this reflects the different age profiles of the two groups, with middle income households containing more people of non-working age. Low income households had an average of 0.7 employed persons and housed an average of 2.6 persons.

### 9.3 INCOME AND HOUSEHOLD CHARACTERISTICS FOR SELECTED LIFE CYCLE GROUPS—2007–08

<i>Household composition</i>	<i>Number of households</i> ( <sup>000</sup> )	<i>Average number of persons in household</i> no.	<i>Average number of employed persons in household</i> no.	<i>Proportion with govt. pensions and allowances as PSI(a)</i> %	<i>Mean equivalised disposable household income per week</i> \$	<i>Proportion owning home without a mortgage</i> %
Lone person, under 35	351.2	1.0	0.9	7.3	796	*3.5
Couple only, reference person under 35	390.9	2.0	1.8	**1.3	1 155	*1.6
Couple with dependent children only						
Eldest child under 5	430.0	3.4	1.5	*4.2	871	6.2
Eldest child 5–14	834.8	4.2	1.6	8.0	769	14.0
Eldest child 15–24	509.2	4.1	2.3	5.1	824	25.5
Couple with						
Dependent and non-dependent children only	289.2	4.8	3.0	**3.5	857	28.8
Non-dependent children only	443.1	3.3	2.3	8.1	989	52.7
Couple only, reference person 55–64	552.0	2.0	1.2	11.5	907	63.0
Couple only, reference person 65 and over	717.2	2.0	0.2	64.5	558	85.6
Lone person aged 65 and over	734.7	1.0	—	76.3	434	69.0
One parent, one-family households with dependent children	497.7	3.0	0.9	44.8	520	8.1
<b>All households</b>	<b>8 077.3</b>	<b>2.6</b>	<b>1.3</b>	<b>23.2</b>	<b>811</b>	<b>33.2</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

(a) PSI = Principal source of income.

Source: Household Income and Income Distribution, Australia, 2007–08 (6523.0).

#### Life-cycle stages

Income levels across the population partly reflect the different life-cycle stages that people have reached. A typical life cycle includes childhood, early adulthood, and the forming and maturing of families. Table 9.3 compares households in different life-cycle stages.

Of the groups included in table 9.3, younger couples without children had the highest average equivalised disposable household income of \$1,155 per week, with an average of 1.8 employed persons in the household. For couples with dependent children only, and with the eldest child being under five years, average equivalised disposable household income was \$871 per week (25% lower than for the young couples without children). This lower income principally reflects the lower average number of employed persons

in these households (1.5) and the larger average number of persons in these households (3.4) over which incomes are shared.

Average incomes were higher for households with non-dependent children, reflecting higher proportions of employed persons in these households, but incomes were lower again for households comprising older couples and lone persons, where the numbers of employed persons were substantially lower.

People living in households where the reference person was aged 65 years and over had the lowest average incomes, with lone persons' incomes at \$434 per week, somewhat lower than for couple only households (\$558 per week). Older lone persons were more likely than older couples to have government pensions and allowances as their principal source of income (76% compared

#### 9.4 HOUSEHOLD INCOME PER WEEK, By state and territory—2007–08

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>CAPITAL CITY (a)</b>									
Gross household income per week									
Mean income	1 981	1 734	1 941	1 473	1 821	1 350	1 874	2 100	1 830
Median income	1 435	1 383	1 492	1 125	1 438	1 071	1 694	1 762	1 410
Equivalised disposable household income per week									
Mean income	912	829	913	783	886	718	887	1 026	874
Median income	737	713	754	682	763	659	808	939	734
<b>BALANCE OF STATE (b)</b>									
Gross household income per week									
Mean income	1 244	1 366	1 443	1 171	1 539	1 133	na	na	1 339
Median income	1 041	1 036	1 177	860	1 250	938	na	na	1 076
Equivalised disposable household income per week									
Mean income	667	714	726	640	780	616	na	na	699
Median income	613	593	645	583	702	531	na	na	627
<b>ALL HOUSEHOLDS</b>									
Gross household income per week									
Mean income	1 690	1 632	1 664	1 395	1 753	1 224	1 847	2 100	1 649
Median income	1 285	1 286	1 313	1 074	1 400	975	1 669	1 762	1 285
Equivalised disposable household income per week									
Mean income	821	798	810	745	860	659	877	1 026	811
Median income	676	689	696	648	740	576	811	939	692

na not available

(a) Capital city estimates for the ACT relate to total ACT.

(b) NT households included in Australian total for balance of state. NT estimates are not shown separately since estimates for the NT other than Darwin are not considered reliable. Households in areas defined as very remote were excluded, accounting for about 23% of the population in the NT.

Source: Household Income and Income Distribution, Australia, 2007–08 (6523.0).

with 65%), while couples were more likely to fully own their home (86% compared to 69%).

Households comprising one parent with dependent children had an average income of \$520 per week, similar to that of older couples (\$558 per week), but only 8% fully owned their home and, therefore, a substantially greater proportion had to make mortgage or rental payments from their income. Of these households, 45% had government pensions and allowances as their principal source of income. On average there were 0.9 employed persons in the household.

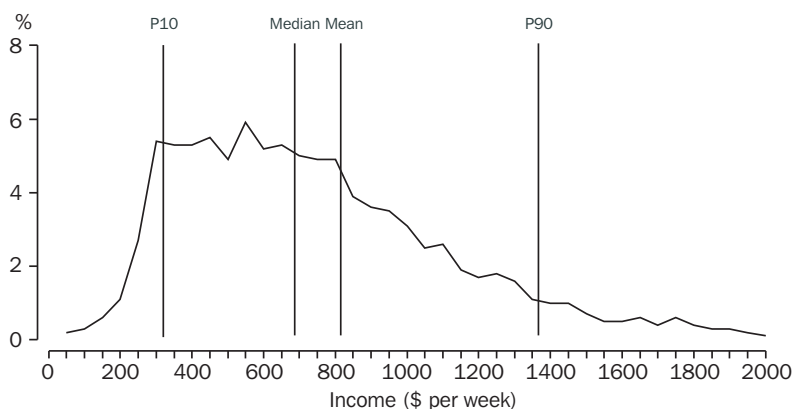
#### States and territories

There were considerable differences in the average levels of income between the states and territories (table 9.4). Tasmania's average equivalised disposable household income was 19% below the national average and South

Australia was 8% below. The Australian Capital Territory and the Northern Territory are shown to have the highest average incomes (27% and 8% above the national average respectively). The high income levels reflect in part the younger age profile of the Australian Capital Territory and the Northern Territory and the greater number of employed persons per household. However, it also reflects the exclusion from the results of households in areas of the Northern Territory defined as very remote which, if included, would be likely to reduce the average income in that territory.

There are also considerable differences between the equivalised disposable household incomes recorded in the capital cities of Australia compared with those earned elsewhere. At the national level, average incomes in the capital cities were 25% above those in the balance of state, with all states recording capital city average incomes above those in the balance of state.

## 9.5 DISTRIBUTION OF EQUIVALISED DISPOSABLE HOUSEHOLD INCOME—2007-08



Note: Persons with an income between \$25 and \$2,025 are shown in \$50 ranges on the graph.

Source: *Household Income and Income Distribution, Australia (6523.0)*.

Separate information for balance of state is not available for the Australian Capital Territory and Northern Territory.

### Income distribution

While the average equivalised disposable household income of all households in Australia in 2007-08 was \$811 per week, the median (i.e. the midpoint when all people are ranked in ascending order of income) was lower at \$692 per week. This difference reflects the typically asymmetric distribution of income where a relatively small number of people have relatively

high household incomes, and a large number of people have relatively lower household incomes (graph 9.5).

Percentile ratios are one measure of the spread of incomes across the population. To illustrate the full spread of the income distribution, the percentile ratio needs to refer to points near the extremes of the income distribution, for example, the P90/P10 ratio. P90 (i.e. the income level dividing the bottom 90% of the population from the top 10%) and P10 (i.e. dividing the bottom 10% of the population from the rest) are shown in graph 9.5. In 2007-08, P90 was \$1,360 per

## 9.6 SELECTED INCOME DISTRIBUTION INDICATORS, Equivalised disposable household income

		1997-98	1999-2000	2000-01	2002-03	2003-04	2005-06	2007-08
Ratio of incomes of households at top of selected income percentiles								
P90/P10	ratio	3.77	3.89	3.97	4.00	3.87	4.05	4.30
P80/P20	ratio	2.56	2.64	2.63	2.63	2.55	2.58	2.63
P80/P50	ratio	1.56	1.57	1.56	1.57	1.53	1.55	1.56
P20/P50	ratio	0.61	0.59	0.59	0.60	0.60	0.60	0.59
Percentage share of total income received by persons with								
Low income(a)	%	10.80	10.53	10.48	10.57	10.60	10.40	10.10
Middle income(b)	%	17.65	17.65	17.63	17.62	17.60	17.40	17.00
High income(c)	%	37.86	38.36	38.49	38.27	38.40	39.20	40.50
Gini coefficient	no.	0.303	0.310	0.311	0.309	0.306	0.314	0.331

- (a) Persons in the second and third income deciles.  
 (b) Persons in the middle income quintile.  
 (c) Persons in the highest income quintile.

Source: *Household Income and Income Distribution, Australia, 2007-08 (6523.0)*.

week and P10 was \$317 per week, giving a P90/P10 ratio of 4.30. Various percentile ratios for selected years are shown in table 9.6, and the changes in these ratios can provide a picture of changing income distribution over time.

Another measure of income distribution is provided by the income shares going to groups of people at different points in the income distribution. Table 9.6 shows that, in 2007–08, 10.1% of total equivalised disposable household income went to people in the 'low income' group (i.e. the 20% of the population in the second and third income deciles), with 40.5% going to the 'high income' group (represented by the 20% of the population in the highest income quintile).

The Gini coefficient is a single statistic that lies between 0 and 1 and is a summary indicator of the degree of income inequality. Values closer to 0 represent a lesser degree of inequality (if 0, then all household incomes would be equal), and values closer to 1 represent greater inequality (if 1, a single household would have all the income). The smaller the Gini coefficient the more even the distribution of income. For 2007–08, the Gini coefficient was 0.331, up from 0.314 in 2005–06. Some of the changes in the income distribution measures between 2005–06 and 2007–08 reflect the improvements introduced in the 2007–08 cycle.

## Household expenditure

The latest household expenditure information available is from the 2003–04 Household Expenditure Survey, conducted by the ABS. This survey collected detailed information on the expenditure, income and characteristics of households in Australia.

The household is the usual unit of analysis for expenditure because it is assumed that sharing of the use of goods and services occurs at this level. If smaller units are adopted, for example, persons, then it is difficult to attribute the use of shared items such as accommodation and household goods, and of expenditure on items consumed by others, such as food.

In 2003–04, Australian households spent an average of \$893 per week on goods and services (table 9.7). The level and pattern of expenditure differed between households, reflecting characteristics such as income, household composition, household size and location.

Predictably, the level of household expenditure differs between households with differing income levels. In 2003–04, low income households (represented by the 20% of people in the second and third income deciles) spent \$564 per week on goods and services, compared with \$1,320 spent by high income households (those in the highest income quintile). Low and high income households had average gross weekly incomes of \$511 and \$2,380 respectively.

The composition of a household's weekly expenditure is also affected by the level of household income. For example, food and non-alcoholic drinks accounted for 21% of the expenditure on goods and services of low income households, compared with 15% for high income households. In general, the proportion spent on household services, domestic fuel and power and tobacco products also declined as household income rose, while the proportion spent on recreation, clothing and footwear, and alcohol increased.

Since the Household Expenditure Survey does not collect information on all forms of income and expenditure, and there are significant timing differences between the different components of income and expenditure collected, caution should be exercised in comparing the income and expenditure data. Nevertheless, for both the lowest and the second lowest income quintiles, average weekly household income as measured in the survey is less than average weekly household expenditure.

This does not necessarily mean that these households are spending beyond their means. Some of the households in these quintiles will have had higher income in the past and so can finance their expenditure by drawing on past savings. This is especially so for retired people. The lowest quintile also includes households who reported zero or negative income. These households' losses from their unincorporated businesses or investments equalled or were greater than their income from all other sources. In general this group can also draw on economic resources other than income to maintain their standard of living, at least in the short term.

## Wealth

Wealth is a net concept measuring the extent to which the value of household assets exceeds the value of liabilities. The 2003–04 and 2005–06

**9.7 HOUSEHOLD EXPENDITURE AND CHARACTERISTICS, By equivalised disposable household income quintile groups—2003–04(a)**

		Lowest quintile	Second quintile	Third quintile	Fourth quintile	Highest quintile	All households	Second and third deciles
Mean gross household income per week	\$	340	707	1 049	1 432	2 380	1 161	511
Mean equivalised disposable household income per week	\$	232	369	504	662	1 073	567	399
Average age of household reference person	years	57	52	47	43	44	49	53
Average number of persons in the household	no.	2.1	2.8	2.8	2.7	2.4	2.5	2.5
Average number of employed persons in the household	no.	0.3	0.9	1.4	1.8	1.9	1.2	1.2
Mean household net worth	\$	285 253	366 989	410 979	490 190	829 310	473 831	297 727
Family composition of households(b)								
Couple family with dependent children	%	15.0	31.9	36.0	33.5	22.7	26.9	20.2
One parent family with dependent children	%	10.3	9.0	6.3	4.9	1.9	6.6	12.6
Couple only	%	25.6	27.6	19.7	22.5	35.9	26.5	33.9
Other one family households	%	4.5	9.8	12.3	12.8	14.2	10.5	6.7
Multiple family households	%	*0.7	*1.0	*1.5	*1.8	*1.3	1.2	*1.3
Lone person household	%	42.2	18.8	21.2	20.2	19.6	25.4	23.8
Group household	%	1.6	1.9	2.9	4.4	4.4	3.0	1.6
Expenditure(c)								
Current housing costs—selected dwelling	%	17.8	15.5	15.8	15.6	16.0	16.1	16.5
Domestic fuel and power	%	3.8	3.2	2.6	2.4	2.1	2.6	3.6
Food and non-alcoholic beverages	%	19.9	19.1	17.5	16.3	15.4	17.1	20.5
Alcoholic beverages	%	1.9	2.2	2.5	2.9	3.0	2.6	1.7
Tobacco products	%	2.0	1.4	1.4	1.4	0.8	1.3	1.8
Clothing and footwear	%	3.5	3.7	3.9	4.1	4.2	3.9	3.6
Household furnishings and equipment	%	5.9	5.8	5.7	5.7	5.9	5.8	5.8
Household services and operation	%	7.1	6.4	6.2	6.1	5.3	6.1	6.9
Medical care and health expenses	%	4.8	5.2	4.9	5.5	5.1	5.1	5.0
Transport	%	14.1	14.9	16.2	16.9	15.3	15.6	13.9
Recreation	%	10.3	12.5	12.6	12.3	14.7	12.8	11.5
Personal care	%	1.8	1.8	1.8	2.0	2.0	1.9	2.0
Miscellaneous goods and services	%	7.2	8.2	8.7	8.9	10.1	8.9	7.2
Mean expenditure on all goods and services per week	\$	490	729	917	1 082	1 320	893	564
Number of households	'000	1 882.7	1 418.9	1 388.1	1 441.8	1 604.3	7 735.8	1 582.7

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Income data used in this table has been made consistent as far as possible with revised treatment of income used in the 2007–08 Survey of Income and Housing.

(b) As a proportion of all households.

(c) As a proportion of total mean expenditure in goods and services.

Source: ABS data available on request, 2003–04 Household Expenditure Survey.

Surveys of Income and Housing collected a comprehensive range of information on household assets and liabilities to enable the production of statistics on net worth (or wealth). In 2005–06, the mean value of household assets was \$655,300 (table 9.8). The mean value of household liabilities was \$92,500, resulting in average household net worth of \$562,900.

Owner occupied dwellings were the main form of asset held by households. Around 70% of all households own their home outright or with a mortgage, with an average home value of \$412,500. When averaged across all households, that is, across both owner occupiers and non-owner occupiers, the average was \$286,100 and represented 44% of total average household

**9.8 HOUSEHOLD ASSETS AND LIABILITIES, AND CHARACTERISTICS, By household net worth quintile groups(a)—2005–06**

		Lowest quintile	Second quintile	Third quintile	Fourth quintile	Highest quintile	All households
<b>ASSETS (MEAN VALUES)</b>							
<b>Financial assets</b>							
Value of accounts held with financial institutions	\$'000	3.0	9.9	14.5	25.4	71.2	24.8
Value of shares (excl. own incorporated business)	\$'000	0.3	2.0	4.6	9.6	97.3	22.7
Value of trusts	\$'000	0.1	0.8	2.0	4.9	42.3	10.0
Value of debentures and bonds	\$'000	—	0.1	0.2	0.6	3.6	0.9
Value of own incorporated business (net of liabilities)	\$'000	—	0.4	1.9	4.1	219.7	45.2
Balance of accounts with government superannuation funds	\$'000	1.3	7.8	10.9	26.7	50.7	19.5
Balance of accounts with non-government superannuation funds	\$'000	6.6	20.5	29.1	55.5	213.5	65.0
<b>Total financial assets(b)</b>	<b>\$'000</b>	<b>11.5</b>	<b>42.0</b>	<b>64.1</b>	<b>127.4</b>	<b>720.4</b>	<b>193.0</b>
<b>Non-financial assets</b>							
Value of owner occupied dwelling	\$'000	6.5	134.7	267.5	377.7	644.0	286.1
Value of other property	\$'000	3.3	17.4	37.3	64.4	331.1	90.7
Value of own unincorporated business (net of liabilities)	\$'000	0.1	1.4	3.1	5.8	61.3	14.3
Value of contents of dwelling	\$'000	16.3	41.2	51.3	61.4	84.5	50.9
Value of vehicles	\$'000	6.1	15.3	17.7	22.1	35.8	19.4
Value of assets nec	\$'000	0.1	0.4	0.4	0.3	3.2	0.9
<b>Total non-financial assets</b>	<b>\$'000</b>	<b>32.5</b>	<b>210.4</b>	<b>377.2</b>	<b>531.8</b>	<b>1 159.9</b>	<b>462.3</b>
<b>Total assets</b>	<b>\$'000</b>	<b>43.9</b>	<b>252.4</b>	<b>441.3</b>	<b>659.1</b>	<b>1 880.4</b>	<b>655.3</b>
<b>LIABILITIES (MEAN VALUES)</b>							
<b>Property loans</b>							
Principal outstanding on loans for owner occupied dwelling	\$'000	5.7	70.2	70.0	55.9	47.9	49.9
Principal outstanding on other property loans	\$'000	3.6	11.3	19.9	29.0	82.3	29.2
<b>Total property loans</b>	<b>\$'000</b>	<b>9.2</b>	<b>81.5</b>	<b>89.9</b>	<b>84.9</b>	<b>130.2</b>	<b>79.1</b>
<b>Other liabilities</b>							
Debt outstanding on study loans	\$'000	2.6	1.4	1.1	1.0	1.3	1.5
Amount owing on credit cards	\$'000	1.4	2.3	2.0	2.0	3.1	2.2
Principal outstanding on loans for vehicle purchases (excl. business loans)	\$'000	2.3	3.9	3.2	2.7	2.1	2.8
Principal outstanding on investment loans (excl. business and rental property loans)	\$'000	—	0.5	1.3	3.0	20.9	5.1
Principal outstanding on loans for other purposes (excl. business and investment loans)	\$'000	1.1	2.2	2.1	1.3	2.1	1.7
<b>Total liabilities</b>	<b>\$'000</b>	<b>16.6</b>	<b>91.8</b>	<b>99.5</b>	<b>94.8</b>	<b>159.7</b>	<b>92.4</b>

— nil or rounded to zero (including null cells)

(a) Household weighted.

(b) Includes value of other financial investments, children's assets and loans to persons not in the same household.

Source: ABS data available on request, Survey of Income and Housing 2005–06.



**9.8 HOUSEHOLD ASSETS AND LIABILITIES, AND CHARACTERISTICS, By household net worth quintile groups(a)—2005–06 continued**

		Lowest quintile	Second quintile	Third quintile	Fourth quintile	Highest quintile	All households
<b>NET WORTH (MEAN VALUES)</b>							
<b>Total household net worth</b>	\$'000	<b>27.4</b>	<b>160.6</b>	<b>341.7</b>	<b>564.3</b>	<b>1 720.7</b>	<b>562.9</b>
<b>CHARACTERISTICS</b>							
Average number of persons in the household	no.	2.2	2.4	2.5	2.7	2.8	2.5
Average number of employed in the household	no.	0.9	1.3	1.2	1.4	1.6	1.3
Average age of household reference person	years	40.3	44.2	52.4	53.9	54.9	49.2
Mean equivalised disposable household income per week(b)	\$	451.1	611.5	573.4	654.2	933.4	657.2
Has wages and salaries as PSI(c)	%	50.2	68.4	57.2	62.0	59.3	59.4
Has government pensions and allowances as PSI(c)	%	43.3	24.2	32.4	24.0	6.6	26.1
Owens home without a mortgage	%	*0.8	16.0	40.6	53.1	61.0	34.3
Owens home with a mortgage	%	3.3	43.7	50.1	42.4	35.4	35.0
Rents from state/territory housing authority	%	20.4	2.4	**0.1	*0.3	—	4.7
Rents from private landlord	%	65.9	31.6	7.1	2.6	2.8	22.0

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use  
— nil or rounded to zero (including null cells)

(a) Household weighted.

(b) Income data used in this table has been made consistent as far as possible with revised treatment of income used in the 2007–08 Survey of Income and Housing.

(c) PSI = Principal source of income.

Source: ABS data available on request, Survey of Income and Housing 2005–06.

assets. About 20% of households owned property other than their own home, including holiday homes and residential and non-residential property for rent. These accounted for 14% of total household assets. Balances in superannuation funds were the largest financial asset held by households, averaging \$84,500 per household across all households and accounting for 13% of total household assets. Around 75% of households had some superannuation assets.

Loans outstanding on owner occupied dwellings were the largest household liability. They averaged \$142,300 for owner occupier households with a mortgage, giving them a net value in their dwellings of \$275,000. Across all households, the average value of loans outstanding on owner occupied dwellings was \$49,900, or 54% of total household liabilities. Loans outstanding for other property averaged \$29,200 and accounted for 32% of total household liabilities.

The distribution of wealth (net worth) across households is very unequal, partly reflecting the

common pattern of people gradually accumulating wealth throughout their working life. In 2005–06, the 20% of households with the lowest net worth accounted for only 1% of the net worth of all households, with an average net worth of \$27,400 per household. The share of net worth increases with each higher net worth quintile, with 6% for the second quintile, 12% for the third quintile, 20% for the fourth quintile, while the wealthiest 20% of households in Australia accounted for 61% of total household net worth, with average net worth of \$1.7 million per household.

The distributional pattern of net worth is also marked when considered in terms of sources of income. Households where the principal source of household income is 'other' income (principally investment income) had average household net worth of \$1.6 million, while those where the principal source of income was government pensions and allowances had average household net worth of \$275,000. Net worth in renter households was on average about 13% of the net worth for owner households

without a mortgage, and about 20% of the net worth for owner households with a mortgage.

The picture of wealth (net worth) is a little different and more equally distributed when viewed from the perspective of the distribution of equivalised disposable incomes. The households in which the 20% of people with the lowest household incomes live accounted for 12% of total household net worth, similar to the shares of net worth held by the households with people in the second and third household income quintiles. The households in which the 20% of people with the highest household incomes live accounted for 39% of total household net worth.

## Income and community support

*Information in this section was contributed by the Australian Government Departments of Families, Housing, Community Services and Indigenous Affairs; Veterans' Affairs; Health and Ageing; Education, Employment and Workplace Relations and the Attorney-General's Department.*

The websites listed at the end of this chapter contain additional information about programs provided by the Australian Government.

### Overview

Australian governments, at all levels, provide support payments that reduce social exclusion and, through a range of programs, provide opportunities for people to contribute to economic growth and the community. Programs have changed over time to meet ongoing changes in family structures, the labour market and the structural ageing of the population. Policies aim to encourage active social and economic participation by members of society within an individual's capacity, redress disadvantage by boosting self-reliance, and provide assistance to those who are unable to support themselves.

Early intervention, prevention and capacity building strengthen individuals, families and communities, increase workforce participation and economic productivity, and ultimately boost retirement incomes.

The Australian Government and state and territory governments have in place a range of reforms with the aim of closing the gap in life

outcomes between Indigenous and non-Indigenous Australians (see *Indigenous Disadvantage and Selected Measures of Wellbeing* in this edition of Year Book Australia). Different strategies are often needed for individual communities in urban, rural and remote areas.

For people of working age, policies aim to find new ways to address disadvantage, remove barriers to workforce participation, increase opportunities, build capacity and ensure that services are accessible and provide effective support for all. Education, training and workforce participation are fundamental to the Australian Government's goal of building a productive and fairer Australia.

For families, social and economic participation is facilitated by early intervention services, a strong child-care sector and assistance with the cost of child care. Family policies promote healthy relationships, protection of at-risk children and parenting self-efficacy. Reforms, including those relating to child support and family breakdown, identify the responsibilities of both parents. Children and young people are encouraged to reach their potential and to participate with their families and community. Women's social and economic participation is supported by initiatives to improve safety, eliminate violence and encourage leadership.

For older Australians, social and economic participation is facilitated by adequate income in retirement. This is addressed through a combination of the Age Pension and related non-cash benefits, compulsory superannuation and other private savings, including voluntary superannuation and home ownership. Tax and superannuation changes create incentives for older people to continue participating in the workforce.

Frail older Australians and people with disability, including mental illness and autism, are encouraged to participate in community life and to access available community and residential care services appropriate to their assessed needs. For carers, there is government and community support available and recognition that caring can be emotionally and physically challenging.

For the veteran community, service is acknowledged through provision of income

support, compensation and rehabilitation, care and commemoration programs.

For communities, engagement is encouraged through partnerships between individuals, families, business, government and welfare and charitable organisations. A strong community sector and high levels of volunteering provide opportunities for individuals to participate in their communities and to engage and support others.

A number of organisations are involved in service delivery. Centrelink delivers services to over 6.5 million customers on behalf of 25 policy agencies. The Family Assistance Office enables families to obtain their family payments in one place. The Department of Veterans' Affairs (DVA) delivers services to the veteran community. The tax system delivers Family Tax Benefits, rebates and offsets. Non-government organisations deliver many services with Commonwealth funding, including family relationship services, financial literacy programs and support for people with a disability.

Australia's responses to economic and social change occur within the context of a federal system that has significant redistributive elements and is underpinned by access to core services including health, education and community services, as well as a strong safety net of income support payments. Responses occur in a complex global environment, where individuals may live, work and accrue entitlements in more than one country and international social security agreements share responsibility to close gaps in their social security coverage.

## Income support

The largest component of welfare is the income support provided by the Australian Government. Over 4.2 million people, or more than one in five individuals, are direct beneficiaries of income support payments at any one time.

Australia's income support system has undergone significant reform in recent years, including responding to the 2008–09 global economic recession and significant reforms to reduce welfare dependency and promote workforce participation. Broadly, the reforms aim to deliver payments to those who are most disadvantaged while encouraging those who can work to do so.

Pension reforms introduced from September 2009 increased adequacy and flexibility of payments while keeping pensions sustainable.

Expenditure on the main income support payments and benefits are listed in table 9.9.

Details of the maximum rates for major income support payments are listed in table 9.10.

## Seniors

Australia's approach for retirement incomes combines an affordable basis for generating retirement incomes with targeted support for those who most need assistance. The retirement incomes framework comprises three pillars:

- The Age Pension provides a publicly funded minimum level of income in retirement, which is not based on past contributions or previous earnings, but is based on current level of financial need. Retirees, who do not meet the means test requirements for the Age Pension, may be eligible for the Commonwealth Seniors Health Card.
- The Superannuation Guarantee, compulsory employer superannuation contributions of 9% of earnings, provides a framework for retirement savings. The Superannuation Guarantee has been operating since 1992, with the 9% minimum contribution in place since 2002. By around the year 2042, people who have had the full 9 per cent superannuation guarantee across their working life will start to retire (assuming a 40 year working life).
- Voluntary superannuation saving and other forms of savings and investment, the most significant typically being owner-occupied homes, enhance retirement savings.

The Age Pension is the main form of income support for seniors and a significant proportion of seniors access the payment. The Age Pension is means tested on income and assets, and currently men qualify for Age Pension at 65 years. Women's qualifying age is currently 64 and will reach 65 by 2014. Further information about changes to the qualifying age for the Age Pension are outlined as part of the pension reform information below.

Wife Pension and Widow B Pension closed to new claimants in the 1990s, as these dependency-based payments are at odds with active participation by women of workforce age.

## 9.9 EXPENDITURE ON MAJOR INCOME SUPPORT PAYMENTS AND BENEFITS(a)(b)

	2005-06	2006-07	2007-08	2008-09
	\$'000	\$'000	\$'000	\$'000
<b>FAMILIES AND CHILDREN</b>				
Family assistance				
Family Tax Benefit - Centrelink payments(c)	13 534 246	14 042 785	14 143 858	17 258 654
Family Assistance Legislative Amendment (More Help for Families - 'One-off' payments)	..	..	..	..
Family Assistance Scheme	22 697	2 310	..	..
Maternity Allowance(d) (e)	..	13	..	..
Maternity Immunisation Allowance(d)	49 843	56 234	61 290	50 411
Baby Bonus (Previously named Maternity Payment)	855 039	1 161 616	1 213 174	1 450 337
Double Orphan Pension	2 669	2 835	3 038	3 225
Child care(f)				
Child Care Benefit	1 501 287	1 478 333	1 863 500	2 103 048
Jobs Education and Training (JET) Child Care fee assistance	21 658	43 035	15 604	27 356
Child Care Tax Rebate	..	450 734	452 912	1 185 064
<b>CARERS</b>				
Carers				
Carer Payment(g)	1 220 828	1 408 052	1 690 889	1 938 825
Carer Allowance(g) (h)	1 258 397	1 349 030	1 591 330	1 801 012
<b>SENIORS</b>				
Seniors(i)				
Age Pension	20 588 124	22 598 475	24 577 319	28 098 263
Aged Persons Savings Bonus	4	2	..	..
'One-off' Payment to Seniors	..	..	..	..
Self-Funded Retirees' Supplementary Bonus	23	21	..	..
Seniors Bonus	..	..	1 400 000	..
Telephone Allowance for Commonwealth Seniors Health Card Holders(g)	18 591	11 867	16 538	18 185
Utilities Allowance(g)	288 109	146 821	630 261	1 172 662
Seniors Concession Allowance(g)	93 420	225 781	235 232	465 352
Widow Class B Pension	6 491	3 689	5 805	7 204
Wife Pension (Age)	173 127	160 810	165 664	157 611
Wife Pension (DSP)	258 497	233 633	224 861	209 135
<b>SPECIAL BENEFIT AND BEREAVEMENT</b>				
Special Benefit	75 042	67 153	64 091	65 251
Bereavement Allowance	1 079	1 421	1 978	2 885

.. not applicable

(a) Outlays on pensions, allowances and Family Tax Benefits include expenditure on Commonwealth Rent Assistance. Details of rent assistance are included in the Housing chapter.

(b) Negative values are recoveries from previous years.

(c) This does not include payments made by the Australian Taxation Office.

(d) Expenditure on Maternity Allowance prior to 2003-04 includes Maternity Immunisation Allowance.

(e) Payments of Maternity Allowance ceased in 2004-05, as they were replaced by the Maternity Payment.

(f) 2007-08 Child Care data is a combination of part year data from the Department of Families, Housing, Community Services and Indigenous Affairs and the Department of Education, Employment and Workplace Relations.

(g) Includes 'one-off' bonus payments in 2005-06, 2006-07 and 2007-08 for the Carer payments, and in 2005-06 for Utilities and Seniors Concession Allowances.

(h) Carer Allowance was introduced on 1 July 1999. It combined Child Disability Allowance with Domiciliary Nursing Care Benefit, which was the responsibility of the Department of Health and Ageing.

(i) Pharmaceutical Allowance and Remote Area Allowance have not been added as expenditure for these items cannot be separately.

Source: Department of Families, Housing, Community Services and Indigenous Affairs, Department of Education, Employment and Workplace Relations, Department of Veterans' Affairs, Department of Health and Ageing.

**9.9 EXPENDITURE ON MAJOR INCOME SUPPORT PAYMENTS AND BENEFITS(a)(b) continued**

	2005-06	2006-07	2007-08	2008-09
	\$'000	\$'000	\$'000	\$'000
<b>WORKING AGE</b>				
Working age payments				
Newstart Allowance	4 527 720	4 493 978	4 180 817	4 885 930
Parenting Payment	6 048 303	5 913 090	5 392 742	5 296 419
Mature Age Allowance	162 667	87 831	28 939	840
Partner Allowance	599 088	522 075	431 064	375 971
Widow Allowance	492 836	505 342	480 081	508 317
Pensioner Education Supplement	78 550	73 489	69 795	69 562
Disability Support Pension	8 256 566	8 651 399	9 370 000	10 918 000
Mobility Allowance	95 872	106 371	114 070	118 546
Sickness Allowance	85 415	85 191	83 363	92 580
<b>YOUTH AND STUDENTS</b>				
Youth and students				
Youth Allowance(c)	2 101 265	2 073 725	2 036 141	2 500 764
Austudy	217 765	217 540	227 894	353 500
ABSTUDY	154 973	155 603	157 934	191 026
<b>VETERANS</b>				
Income Support Program(d)				
Service Pension	2 495 893	2 573 523	2 592 861	2 848 721
Income Support Supplement	328 315	336 747	356 299	350 299
Compensation Program(d)				
Disability Support Pension (DSP)	1 327 420	1 346 811	1 416 830	1 458 536
War Widow(er)/ Orphan Pensions	1 542 538	1 588 730	1 636 177	1 674 177
Economic Security Strategy payment to Pensioners, Seniors, Carers and people with a disability	..	..	..	4 900 000
<b>ALL MAJOR INCOME SUPPORT PAYMENTS AND BENEFITS</b>				
Total(e)	68 484 357	72 176 095	76 932 351	92 557 668

(a) Outlays on pensions, allowances and Family Tax Benefits include expenditure on Commonwealth Rent Assistance. Details of rent assistance are included in the Housing chapter.

(b) Negative values are recoveries from previous years.

(c) Youth Allowance is composed of an allowance for full-time or part-time students (Youth Allowance (students)) and unemployed young people (Youth Allowance (other)). Both are administered by the Department of Education, Employment and Workplace Relations.

(d) Previously published DVA figures for Service Pension, Income Support Supplement, Disability Pension and War Widow(er)/Orphan Pensions for 2006-07 have been updated.

(e) Total is for the above programs only and does not include some minor income support payments identified.

Source: Department of Families, Housing, Community Services and Indigenous Affairs, Department of Education, Employment and Workplace Relations, Department of Veterans' Affairs, Department of Health and Ageing.

Supplementary assistance is provided to eligible recipients through Remote Area Allowance, Telephone Allowance, Utilities Allowance, Pharmaceutical Allowance, and Concession cards.

From 20 September 2009, comprehensive pension reforms were introduced to improve the adequacy of the pension and its sustainability into the future. Pension rates were increased and the maximum single base rate of pension was raised to two thirds of the partnered rate. Income test rules have been changed to better target those with the lowest incomes, with transitional arrangements for those who received a pension

prior to 20 September 2009. A new income test concession (Work Bonus) was introduced for employment income, while the Pension Bonus Scheme was closed to new entrants. From 2017, the Age Pension age will gradually increase from 65 to 67 by 2023.

The reforms also introduced new indexation arrangements to better reflect the cost of living increases experienced by pensioners. The Age Pension is now indexed by the greater of the movement in the Consumer Price Index or the new Pensioner and Beneficiary Living Cost Index (see Chapter 29 *Prices* of this edition of Year

## 9.10 MAXIMUM FORTNIGHTLY RATES FOR MAIN INCOME SUPPORT PAYMENTS(a)—2008–2009

	2008	2009
	\$	\$
Austudy (single, no children)	355.40	371.40
Carer Allowance	100.60	105.10
Disability Pension (DVA)		
General Rate	344.80	359.50
Extreme Disablement Adjustment (EDA)	535.60	558.50
Intermediate Rate	658.50	68.60
Special Rate (TPI)	970.50	1 011.90
FTB Part A (for 1 child <13)(b)	145.46	151.34
FTB Part B (youngest child <5)(b)	125.02	128.80
Newstart (single, no children)	437.10	453.30
Pensions (single)(c)	546.80	569.80
Parenting Payment Partnered	394.40	409.00
Rent Assistance (single with 3 or more children)	142.38	147.56
War widow's pension (DVA)	582.40	607.00
Income Support Supplement (DVA)	163.20	170.20
Youth Allowance (18 and over, at home)	233.90	244.40
Child Care Benefit-approved care (non-school age, one child)	3.37/hr	3.47/hr

(a) Not a complete list of Income Support payments. Rates for couples are not included.

(b) FTB supplement is not included.

(c) Maximum rate for age pension, disability support pension, parenting payment (sole parents) and service pension.

Source: Centrelink, A Guide to Australian Government Payments, 20 March – 30 June 2009 and 20 March - 30 June 2009, Department of Veterans' Affairs.

## 9.11 AGE PENSIONERS(a)

		2005–06	2006–07	2007–08	2008–09
Males	no.	800 310	815 912	868 179	906 769
Females	no.	1 121 819	1 136 774	1 171 126	1 210 761
Persons	no.	1 922 129	1 952 686	2 039 305	2 117 530
<b>Total payments</b>	<b>\$'000</b>	<b>20 588 124</b>	<b>22 598 475</b>	<b>24 577 319</b>	<b>28 098 263</b>

(a) Numbers are for June and include age pension recipients paid by Department of Veterans' Affairs.

Source: Department of Families, Housing, Community Services and Indigenous Affairs.

Book Australia for further information). Also, the maximum single rate of pension benchmark to Male Total Average Weekly Earnings increased, from 25 per cent to an effective 27.7 per cent, in March 2010 and to 41.76 per cent for couples combined.

The number of age pensioners and the expenditure on the Age Pensions is shown in table 9.11.

### Aged care

Aged care policies aim to help people remain healthy and be able to participate in their community. One in four people aged 70 years and over makes some use of aged care. While most remain in their own home and use community care, one in ten uses a residential

care facility. In 2007, the Australian Government announced a \$1.6 billion package of aged care reforms.

### Assessment for aged care

Aged Care Assessment Teams (ACATs) ensure that access to aged care services is based on care needs. Individuals must be assessed as eligible and approved by an ACAT before their care can be subsidised by the Australian Government. In 2008–09 the Australian Government provided \$72.3m to state and territory governments for the operation of 115 ACATs.

### Places and funding

Aged care places are allocated in proportion to the number of people aged 70 years and older. Allocation takes account of people with special

### 9.12 OPERATIONAL AGED CARE PLACES(a)

	2002-03	2003-04	2004-05	2005-06	2006-07
Transition care	..	..	..	595	1 594
Community care(b)	27 850	29 779	32 588	38 492	42 316
Residential care	150 786	156 056	161 165	165 782	169 594
<b>Total</b>	<b>178 636</b>	<b>185 835</b>	<b>193 753</b>	<b>204 869</b>	<b>213 504</b>

.. not applicable

(a) As at 30 June; includes flexible care places attributed as residential or community care.

(b) Includes Community Aged Care Packages and, from 2003-04, Extended Aged Care at Home Packages.

needs, including people from Indigenous communities. Table 9.12 shows the number of operational aged care places at 30 June in each of the years from 2006 to 2009. There were 223,107 operational aged care places at 30 June 2008, equating to a ratio of 111.4 places per 1,000 people aged 70 years or older. There were 257,978 places allocated at 30 June 2009. The Australian Government's expenditure on aged care in 2008-09 was \$9.1b (this includes expenditure by the Department of Veteran's Affairs (DVA) on residential aged care).

#### Transition care

The Transition Care Program is a jointly funded program that assists older people when they are discharged from hospital. Services include therapy, social work, case management, nursing support and/or personal care. The program helps older people, who would otherwise be eligible for residential care, complete their restorative process and optimise their functional capacity, while assisting them and their family or carer to make long-term care arrangements. Transition

care can be provided in either a home-like residential setting or in the community.

#### Care in the community

Most older people want to remain in their own homes as long as possible – close to family and friends, and the shops, churches and activities, with which they are familiar. Community care maximises their independence and assists them and their families and carers where necessary through practical support. Assistance with activities of daily life may include, for example, shopping, bathing, dressing, cooking, cleaning, gardening and home maintenance.

Three main programs provide care to people in their own homes:

- *Home and Community Care (HACC)* is a joint government initiative to assist frail aged people, people with disability, and carers. HACC services assist people with lower levels of care needs than those who receive residential care or community care packages.

### 9.13 EXPENDITURE FOR SELECTED AGED CARE PROGRAMS

	2005-06	2006-07	2007-08	2008-09
	\$m	\$m	\$m	\$m
Community care programs				
Home and Community Care (HACC) Program	857.8	928.4	1 006.7	1 094.4
Community Aged Care Packages (CACCP) Program	356.6	404.8	447.8	479.7
Extended Aged Care at Home (EACH) Program	66.5	103.9	198.8	256.3
Other aged care programs				
Age Care Assessment	55.6	61.5	69.3	72.3
Assistance with Care and Housing for the Aged (ACHA) Program	2.7	2.7	3.5	4.3
National Respite for Carers Program (NRCP)	138.7	166.8	173.5	184.1
Commonwealth Carelink Program (CCP)	16.4	16.2	16.4	17.4
Dementia Specific Programs(a)	22.9	25.2	31.2	31.4
Day Therapy Centres	33.2	33.9	34.6	34.8
National Continence Management Strategy (NCMS)	3.5	2.5	4.2	3.8

(a) Excludes national dementia initiatives funded under NRCP.

- *Community Aged Care Packages (CACPs)* provide low level care in the home for frail older people who have complex care needs requiring planning and case management.
- *Extended Aged Care at Home (EACH)* assists frail aged people with complex care needs to stay in their own homes as an alternative to high-level residential care. Typically the packages include some nursing services. EACH-D packages assist people with dementia to remain longer in the community.

Other aged care programs use flexible, or more targeted, approaches. These include multipurpose services in rural and remote areas, services provided through the National Aboriginal and Torres Strait Islander Aged Care Strategy, and targeted initiatives to meet particular needs, such as dementia, incontinence, or loss of hearing or vision.

Table 9.13 shows Australian Government expenditure on selected aged care programs.

### Residential aged care

The Department of Health and Ageing subsidises and regulates residential care for frail older people. Most residential care is provided by the non-government sector, including not-for-profit and private sector providers. Targeted capital assistance is available to aged-care homes catering largely for residents with special needs or on low incomes, or located in rural and remote

areas of Australia. A more detailed description is found in Chapter 10 *Housing* of this edition of Year Book Australia.

### Veterans, members of the Australian Defence Force and their families

The Australian Government supports those who serve or have served in defence of Australia by providing compensation and income support entitlements, delivering health care and rehabilitation services, and fulfilling Australia's commitment to remember and honour them.

### Compensation payments

Compensation is paid to veterans, their war widow(er)s and their dependants for the effects of war-caused injury or disease resulting from eligible war or defence service. Injuries or diseases must have been caused or aggravated by war service or certain defence service on behalf of Australia. Rates depend on incapacity and lifestyle:

- General Rate Disability Pension is payable to a veteran as compensation for the impairment and lifestyle effects of war or defence service.
- Extreme Disablement Adjustment is payable to a severely incapacitated veteran who has reached 65 years of age and is not eligible to receive the Special or Intermediate Rate.

#### 9.14 DISABILITY AND WAR WIDOW(ER)'S' PENSIONERS(a)

Recipient		2005–06	2006–07	2007–08	2008–09
Incapacitated veterans	no.	145 546	139 727	134 311	128 146
General Rate - from 10% to 100%	no.	101 399	96 174	91 057	85 630
Extreme Disablement Adjustment	no.	14 259	13 582	12 946	12 137
Intermediate Rate	no.	933	917	880	842
Special Rate (TPI or equivalent)	no.	28 955	29 054	29 428	29 537
Wives and widows(b)	no.	32 666	29 627	26 815	24 299
Children	no.	131	91	49	14
War widows and widowers(c)	no.	112 882	110 590	108 023	104 760
Orphans	no.	222	198	193	201
Other dependants	no.	517	500	485	469
Total(d)	no.	290 089	278 927	268 125	256 201
Total expenditure(e)(f)	\$'000	2 869 958	2 935 541	3 053 007	3 132 713

(a) Number of customers in June.

(b) Wives of incapacitated veterans and widows of deceased veterans who have not died from an accepted war caused condition.

(c) Widows and widowers of deceased veterans who have died from an accepted war caused condition.

(d) The totals do not equal the sum of the components due to overlaps.

(e) Includes associated allowances.

(f) Previously published DVA total expenditure figure for 2006–07 has been updated.

Source: Department of Veterans' Affairs.



## 9.15 MILITARY COMPENSATION AND REHABILITATION SERVICE, Activities—2008–09

	2008		2009	
	SRCA(a)	MRCA(b)	SRCA(a)	MRCA(b)
Total lump sum and incapacity payees for 12 months ended 30 June (incl. dependent children)	4 338	1 009	3 857	1 327
New primary injury claims received	3 327	2 450	3 469	3 180
New permanent impairment claims received	3 326	1 481	2 886	1 336
New rehabilitation referrals received	530	345	503	345
New reconsideration requests received	869	248	733	295
New applications made to the AAT(c)	190	73	170	48
All accounts paid (incl. medical household services and attendant care)	100 769	9 179	100 027	8 782

(a) Benefits paid through the Safety, Rehabilitation and Compensation Act 1988 (SCRA) (Cwlth).

(b) Benefits paid through the Military Rehabilitation and Compensation Act 2004 (MRCA) (Cwlth).

(c) Administrative Appeals Tribunal.

Source: Department of Veterans' Affairs.

- Intermediate Rate Pension is payable to a veteran who is only able to undertake part-time or intermittent employment up to 20 hours per week.
- Special (Totally and Permanently Incapacitated) Rate Pension is payable to a veteran who is prevented from working more than eight hours per week.

Table 9.14 shows the number of pensioners by type and total expenditure on disability and war widow(er)s' pensions.

The Veterans' Children Education Scheme provides financial help, guidance and counselling to certain students up to 25 years of age. At June 2008, there were 3,876 beneficiaries. Total expenditure in 2007–08 was \$16.8m and in June 2009 the corresponding figures were 3,750 and \$15.3m respectively.

### Military compensation

The DVA is responsible for providing benefits through the *Safety, Rehabilitation and Compensation Act 1988 (SRCA)* (Cwlth) for injuries and diseases related to service prior to 1 July 2004 and through the *Military Rehabilitation and Compensation Act 2004 (MRCA)* (Cwlth). Table 9.15 summarises activities under these Acts for 2008–09.

### Income support for veterans

There are several income support pensions payable to veterans and their dependants:

- Age Service Pension (ASP) is payable to male veterans with qualifying service at 60 years of age. ASP is similar to the Age Pension, but is granted five years earlier. The minimum age at which a female veteran can be granted ASP is progressively rising from 55 to 60 years in six-monthly increments every two years over the period 1995–2013.
- Invalidity Service Pension is payable to veterans with qualifying service if they are permanently incapacitated for work.
- Partner Service Pension (PSP) is payable on the basis that the person is the partner or widow(er) of a veteran with qualifying service. PSP is similar to the Age Pension, but is granted five years earlier. There is further concession on the age requirement where the couple have a dependent child, or the person is the partner of a veteran who receives disability pension at more than the general rate.
- Income Support Supplement is payable to war or defence widow(er)s.

Depending on the individual's circumstances, recipients of income support payments may be eligible for supplementary benefits including the Defence Force Income Support Allowance, Rent Assistance, Remote Area Allowance and Pension Supplement. The Defence Force Income Support Allowance may only be payable if a person receives both an income and support payment under Social Security Pension or Benefit and an Adjusted Disability Pension under the Veterans' Entitlement Act. Self-funded retirees may be eligible for Seniors Supplement to assist with payment of energy, rates, water and sewerage expenses.

### 9.16 SERVICE PENSIONERS(a)

		2005-06	2006-07	2007-08	2008-09
Veterans					
Old age	no.	103 273	94 903	89 893	83 838
Permanently incapacitated	no.	19 121	18 742	18 641	18 180
Tuberculosis(b)	no.	64	53	46	35
Total	no.	122 458	113 698	108 580	102 053
Wives and widows	no.	103 110	96 864	93 959	88 972
<b>Total</b>	<b>no.</b>	<b>225 568</b>	<b>210 562</b>	<b>202 539</b>	<b>191 025</b>
Total expenditure(c)	\$'000	2 824 208	2 910 271	2 949 160	3 199 020

(a) Number of customers in June.

(b) Eligibility on these grounds ceased on 2 November 1978.

(c) Includes associated allowances and Income Support Supplement recipients.

Source: Department of Veterans' Affairs.

### 9.17 VVCS VETERANS AND VETERANS FAMILIES COUNSELLING SERVICE(a)

Type of counselling		2005-06(b)	2006-07(b)	2007-08	2008-09
Centre-based consultation	sessions	23 384	23 197	21 255	19 940
Group session consultation	hours	12 226	10 605	9 922	9 379
Country outreach consultation	sessions	39 143	36 306	30 203	32 029
Intake and assessment(c)	sessions	..	..	5 964	11 431

.. not applicable

(a) Prior to April 2007 the VVCS was known as the Vietnam Veterans Counselling Service.

(b) Previously published figures for 2005-06 and 2006-07 have been updated.

(c) In January 2008 VVCS introduced recording Intake and Assessment service activity. Previously, only those clients who were allocated for counselling had this recorded as the first session. This service is now captured separately and includes all contacts of a clinical nature regardless of whether they are allocated for centre or outreach counselling.

Source: Department of Veterans' Affairs.

The Defence Service Homes Scheme provides financial benefits, including housing loan interest subsidies, comprehensive home owners insurance cover at competitive rates, and home contents insurance. At 30 June 2008 and 2009, 82,993 and 79,514 homes respectively, were insured. The corresponding number of loan accounts were 28,900 and 25,748 while the corresponding amounts of subsidy paid were \$6.3m and \$5.8m.

Table 9.16 shows the total number of recipients and annual expenditure on service pensions.

#### Health program

Health care treatment is provided to all veterans of Australia's defence force who are aged 70 years and over and who have qualifying service, war Widows/Widowers and eligible dependants of a deceased veteran. Service pensioners who satisfy the treatment benefits means test are also eligible. People whose disabilities have been accepted by the DVA as service-related, and for pulmonary tuberculosis, post-traumatic stress

disorder and malignant neoplasia whether they are service-related or not. Vietnam veterans with anxiety and depression and Gulf War veterans with undiagnosable conditions are also eligible for health care treatment whether the conditions are service-related or not.

The Veterans and Veterans Families Counselling Service (VVCS) provides intake assessment, counselling, case management services and group programs to veterans of all conflicts and their families, as well as working with the ex-service community to promote awareness and understanding of mental health problems in the veteran community. Table 9.17 shows use of the VVCS.

In addition, and subject to conditions, health care treatment in Australia is provided to certain veterans of Australia's defence forces for all health conditions. War widow(er)s and certain other dependants of deceased veterans are also entitled to treatment for all conditions.

Other services include vocational rehabilitation services, acute hospital care, dental and pharmaceutical assistance, and transport assistance.

## People of working age

### Working-age payments

Working age payments provide financial assistance to people who are unemployed, and looking for work or participating in employment preparation programs, or have parenting responsibilities. Newstart Allowance, Parenting Payment (partnered and single), and Youth Allowance (see later section on Youth services and support) are the main payments available to people of working age.

From July 2006, working age payment policies changed to focus more on increasing workforce participation and reducing welfare dependency. In return for financial support, working-age people with a capacity to work are expected to participate in the paid workforce, or demonstrate that they are looking for work or undertaking activities to improve their employment prospects, such as further study, training or approved voluntary work. Participation requirements are modified for those with reduced work capacity due to disability or caring responsibilities.

Newstart Allowance is payable for eligible job seekers aged 21 years or over and under age pension age. Newstart allowees have access to employment services that provide a range of integrated services and includes special help for retrenched workers and youth. Newstart allowees have participation requirements, however these are designed to accommodate factors such as caring responsibilities, disability, age and location.

Parenting Payment is the main income support payment for people with sole or primary responsibility for the care of a young child. Single parents who claim income support after 1 July 2006 may be eligible for Parenting Payment (Single) until their youngest child turns eight. Partnered parents may be eligible for Parenting Payment (Partnered) until their youngest child turns six. These parents are required to look for part-time work of at least 15 hours a week or undertake another approved activity when their youngest child turns six.

People receiving Parenting Payment since before 1 July 2006 can remain on this payment until their youngest child turns 16, subject to them continuing to meet all eligibility requirements. These parents have part-time work eligibility requirements from 1 July 2007 or when their youngest child turns seven, whichever is the later.

Job seekers and parents (including the most disadvantaged such as the long term unemployed) have access to Job Services Australia, the Australian Government's employment services. Job Services Australia is an integrated service that provides job seekers with a personalised service with a strong focus on skills development and training, work experience and tailored interventions to suit individual needs and circumstances. There are strong links between the employment services providers and local employers. Parents also have access to child-care assistance to enable workforce participation.

Disability Employment Services are also available to help job seekers with disability, injury or health conditions find work. All eligible job seekers with disability have access to individually tailored and comprehensive services including capacity building, training, work experience and other interventions to help participants obtain and maintain suitable employment.

Recipients of Widow Allowance and Partner Allowance (closed to new claimants from September 2003) do not have participation requirements; however employment services are available to them should they wish to get help to find work.

Other working age payments include:

- Special Benefit, which provides assistance to people in severe financial need and for whom no other pension or allowance is available.
- Bereavement Allowance, which is a short-term payment for people without dependent children whose partner has recently died.
- Sickness Allowance which may be paid to people aged between 21 years and Age Pension age who are temporarily unable to work or continue with their full-time study due to illness or injury, but who have a job or study to return to.

Other supplementary payments include:

### 9.18 WORKING AGE ALLOWANCES(a)(b)

		2005-06	2006-07	2007-08	2008-09
Newstart Allowance					
Short-term (less than 12 months)					
Males	no.	120 479	104 439	100 418	176 906
Females	no.	53 730	55 764	55 674	84 698
Persons	no.	174 209	160 203	156 092	261 604
Long-term (12 months and over)					
Males	no.	167 686	158 344	142 322	149 200
Females	no.	96 665	99 246	100 987	109 390
Persons	no.	264 351	257 590	243 309	258 590
Total payments	\$'000	4 527 720	4 493 978	4 180 817	4 885 930
Parenting Payment					
Single					
Males	no.	32 463	25 677	20 559	18 348
Females	no.	400 907	369 818	340 074	325 748
Persons	no.	433 370	395 495	360 633	344 096
Total payments	\$'000	4 818 425	4 696 298	4 368 571	4 281 362
Partnered					
Persons	no.	159 719	144 427	125 922	129 365
Total payments	\$'000	1 229 878	1 216 792	1 024 171	1 015 057
Mature Age Allowance(c)					
Recipients	no.	12 038	5 032	754	—
Total payments	\$'000	162 667	87 831	28 939	840
Partner Allowance					
Recipients	no.	60 489	45 988	38 456	29 369
Total payments	\$'000	599 088	522 075	431 064	375 971
Widow Allowance					
Recipients	no.	44 603	40 247	39 131	36 086
Total payments	\$'000	492 836	505 342	480 081	508 317
Sickness Allowance					
Recipients	no.	7 510	7 624	47 202	48 386
Total payments	\$'000	85 415	85 191	69 795	69 562
Pensioner Education Supplement					
Recipients	no.	53 646	47 362	7 437	6 968
Total payments	\$'000	78 550	73 489	83 363	92 580

— nil or rounded to zero (including null cells)

(a) Number of recipients in June.

(b) The number of Newstart, Mature Age, Partner and Widow Allowance recipients in this table excludes Community Development Employment Projects (CDEP) participants.

(c) Closed to new entrants from 20 September 2003.

Source: Department of Education, Employment and Workplace Relations.

- Pensioner Education Supplement - a fortnightly income supplement for single parents or people with disability who are studying.
- Education Entry Payment is a lump sum payment for those commencing approved study.
- Training Supplement – a fortnightly supplementary payment for recipients of Newstart Allowance and Parenting Payment Single who undertake approved training during the period 1 July 2009 to 30 June 2011, and
- Language, Literacy and Numeracy Supplement to assist people with the costs of participating in the Language, Literacy and Numeracy Program.

Table 9.18 shows the number of Newstart Allowance, Parenting Payment and other working-age allowances recipients, together with expenditure on these allowances.

## People with disability

Specialist disability services and assistance are available to help people with disability, including mental illness and autism, and their families and carers, to participate actively in community and economic life, access a responsive and sustainable safety net and support services, and develop their capabilities.

### Disability support payments

Disability Support Pension (DSP) is an income support payment for people with physical, intellectual or psychiatric impairment assessed as unable to work at least 15 hours a week independently of support. DSP recipients are not required to participate in the workforce, but are encouraged to engage with employment services and look for work that matches their assessed capacity.

DSP is income and assets tested. However, recipients who are permanently blind are exempt from the income and assets tests. DSP for people aged 21 years and over is paid at the same rate as Age Pension. Youth rates apply to those aged under 21 years without children. These are largely tied to Youth Allowance rates, but include a Youth Disability Supplement in recognition of the additional costs faced by people with disabilities. DSP youth rates are not subject to parental income or assets tests.

In addition, Mobility Allowance helps those involved in paid work, employment services,

vocational training or voluntary work or a combination of these, who are unable to use public transport without substantial assistance.

Supplementary assistance is provided to eligible recipients through Remote Area Allowance, Telephone Allowance, Utilities Allowance, Pharmaceutical Allowance, and concession cards.

Table 9.19 shows the number of recipients of support for people with a disability, and expenditure by payment type.

### National Disability Agreement (NDA)

The National Disability Agreement (NDA), which replaces the Commonwealth State Territory Disability Agreement (CSTDA) came into effect from 1 January 2009.

Under the new Agreement, the Commonwealth Government will provide more than \$5 billion in funding over five years to the state and territory governments for specialist disability services. The Agreement means that in 2013 the Commonwealth Government's contribution will exceed \$1.2 billion, compared to \$620 million in 2007.

Under the Agreement, the Commonwealth Government is responsible for employment and income support and state and territory governments are responsible for specialist delivery services such as supported accommodation, targeted support and respite.

State and territory governments, in consultation with the Commonwealth, have agreed to develop a system comprising single access points for disability services, consistent assessment processes, quality assurance systems and more consistent access to aids and equipment as

#### 9.19 SUPPORT FOR PEOPLE WITH DISABILITY(a)

		2005-06	2006-07	2007-08	2008-09
Disability Support Pension					
Males	no.	415 618	413 033	413 484	422 290
Females	no.	296 545	301 123	318 883	334 828
Persons	no.	712 163	714 156	732 367	757 118
Total payments	\$'000	8 256 566	8 651 399	9 370 000	10 918 000
Mobility Allowance					
Recipients	no.	51 669	54 942	55 299	56 080
Total payments	\$'000	95 872	106 371	114 070	118 546

(a) Number of customers in June.

Source: Department of Families, Housing, Community Services and Indigenous Affairs, Department of Employment and Workplace Relations.

national priorities. Together these reforms will provide a responsive system of disability support that is easy to access and responds flexibly to people's changing needs.

Through the Agreement, the Commonwealth Government will provide funding to state and territory governments for more services to help with the reform of the disability service system.

This funding includes \$1.9 billion agreed by Disability Ministers in May 2008 which will provide more than 24,800 additional disability places including:

- around 2,300 in-home support services
- 2,300 supported accommodation places
- 10,000 individual support packages
- 10,000 much needed respite places in a range of forms across Australia.

### **Younger People with Disability in Residential Aged Care**

Residential aged care is often not the best accommodation and care option for younger people with disability. In June 2006 there were around 6,500 people with disability under the age of 65 years in residential aged care, of whom around 1,000 were aged under 50 years.

At the Council of Australian Governments (COAG) meeting in February 2006, the Australian, state and territory governments committed up to \$244m in matched funding in the Younger People with Disability in Residential Aged Care program, for a five year period. The aim of the program is to move young people with disability out of residential aged care into more appropriate accommodation, divert those at risk of admission to residential aged care and provide enhanced services to those who chose to remain in residential aged care. The programs initial priority target group is people under 50 years of age, however where possible, people aged less than 65 years are also included.

### **National Mental Health and Disability Employment Strategy**

The Australian Government's Social Inclusion Agenda promotes participation and access to resources for all Australians. As part of the Social Inclusion Agenda, the Australian Government has developed a National Mental Health and Disability Employment Strategy. The objective of the

Strategy is to increase the employment of people with disability, promote social inclusion and improve national economic productivity. Initiatives have been developed to ensure Australians with disability and mental illness have improved opportunities to search, find and maintain employment.

Disability Employment Services commenced on 1 March 2010, and is supported by two programs; Program A for eligible job seekers who require the assistance of a Disability Employment Service but are not expected to need long-term support in the workplace, and Program B for job seekers with a permanent disability and with an assessed need for more long-term, regular support in the workplace. Participants work with their provider to develop their own Employment Pathway Plan and access to an Employment Assistance Fund is available to assist with finding and maintaining employment such as workplace modifications and Auslan interpreting services.

### **Mental health**

In February 2006, Australian leaders committed to reform the mental health system. The Council of Australian Governments (COAG) *National Action Plan on Mental Health 2006–2011* emphasises collaboration between sectors to deliver a more connected care system. Initiatives valued at \$4 billion are being implemented over five years. Reforms contribute to the wellbeing of people with mental illness, their families and carers, which strengthens communities.

The Action Plan aims to improve mental health and facilitate recovery through a greater focus on promotion, prevention and early intervention; improved access to mental health services, including in Indigenous and rural communities; more stable accommodation; and meaningful participation in recreational, social, employment and other activities. Improving the care system will involve a focus on better coordinated care and building workforce capacity.

There are interconnections between mental illness and homelessness, unemployment, physical disability, alcohol and other drugs use, family violence, abuse, torture and trauma. People with mental illness and their families need integrated responses from services. Community support programs complement clinical responses in supporting recovery from mental illness.

Other vulnerable groups within communities include the forgotten Australians, stolen generation and humanitarian entrants. Targeted support will be provided to these vulnerable groups through the Personal Helpers and Mentors service strategy.

## Carers

Informal carers play an important role in providing daily care and support to people with disability, people with a medical condition, people with mental illness and the aged. In providing this assistance and support, carers make a significant social and economic contribution to Australian society. Whilst informal care can be a positive experience for both the carer and care receiver, it can also impact on the carer who may need additional support to ensure that they have the opportunity to enjoy optimum health, social, and economic well-being and to participate in family, social and community life, employment and education. Nearly 2.6 million Australians are carers and the demand for carers can be expected to increase as the population ages.

## Income support

There are two main forms of financial support for carers. Carer Payment is an income support payment for people who, because of their caring responsibilities, are unable to support themselves through substantial paid employment. Carer Allowance is an income supplement available to people who provide daily care and attention in a private home to a person who has disability or severe medical condition, or who is frail aged. In 2004, 2005, 2006, 2007 and 2008 a Carer Bonus of \$1,000 was paid to Carer Payment recipients and \$600 for recipients of Carer Allowance for each

eligible care receiver. The Secure and Sustainable Pension Reform package announced in the 2009-10 Budget introduced the \$600 Carer Supplement. The Carer Supplement is paid to recipients of Carer Allowance for each person being cared for. Carer Supplement is also paid to:

- recipients of Carer Payment
- recipients of both Wife Pension and Carer Allowance
- recipients of both Department of Veterans' Affairs Partner Service Pension and Carer Allowance
- recipients of Department of Veterans' Affairs Carer Service pension.

The first payments of Carer Supplement were made in June 2009. Future payments of Carer Supplement will be paid on 1 July each year, starting from 1 July 2010.

Supplementary assistance is provided to eligible recipients through Remote Area Allowance, Telephone Allowance, Utilities Allowance, Pharmaceutical Allowance, and concession cards.

Table 9.20 shows the number of recipients and expenditure on support for carers.

## Carer services and assistance

The Australian Government funds services for carers, including respite services, Commonwealth Respite and Carelink Centres, practical and financial support, and services delivered through the HACC Program. Other non-financial assistance to carers includes special measures for young carers, people with mental illness and carers of people with intellectual disability, assistance to parents with disabled children with

### 9.20 SUPPORT FOR CARERS(a)

		2005-06	2006-07	2007-08	2008-09
Carer Payment					
Recipients	no.	105 058	116 614	130 657	146 870
Total payments(b)	\$'000	1 220 828	1 408 052	1 690 889	1 938 825
Carer Allowance					
Recipients	no.	366 960	393 263	422 905	461 086
Total payments(b)	\$'000	1 258 397	1 349 030	1 591 330	1 801 012

(a) Numbers in June.

(b) Includes 'one-off' bonus payments in all years.

Source: Department of Families, Housing, Community Services and Indigenous Affairs.

severe disability and projects to address the impacts of long-term caring.

## Youth and students

### Income support

Youth Allowance supports young people aged 16–20 years actively seeking employment and full-time students aged 16–24 years. It is subject to a personal income and assets test. If the young person is not independent, then parental income, family assets, and family actual means tests also apply. The rate of payment depends on age and circumstances.

In April 2009, COAG agreed to a Compact with Young Australians to increase young people's engagement with education and training pathways. Part of this compact comprises the National Youth Participation Requirements for young Australians. From 1 July 2009, young people are considered to be early school leavers until they have completed Year 12 or an equivalent qualification (Certificate Level II). Early school leavers are required to participate in full-time study or training, or in part-time study or training in combination with other approved activities, for a total of 25 hours per week. Young principal carer parents or those with a partial capacity to work have reduced participation requirements of 15 hours per week.

Austudy is a means tested income support payment provided to students or Australian Apprentices aged 25 years and over. To qualify for assistance, a person must be undertaking qualifying study (full-time or a concessional study load) in an approved course at an approved educational institution; and an Australian resident and currently residing in Australia.

ABSTUDY is the Aboriginal and Torres Strait Islander Study Assistance Scheme that provides a means tested living allowance and other supplementary benefits to eligible Indigenous Australian secondary and tertiary students. To qualify for assistance a person must be undertaking full-time study in an approved course at an approved educational institution and meet residency requirements.

Supplementary assistance may be provided to eligible recipients through Remote Area Allowance, Pharmaceutical Allowance, Telephone Allowance and concession cards.

Family Tax Benefit (FTB) may be available to help families with the cost of raising a young person who is not receiving Youth Allowance or a similar payment. It may be payable for a young person up to 21 years of age, or aged between 21 and 24 years who is studying full time.

Table 9.21 shows the number of recipients of and the expenditure on youth and student support.

**9.21 YOUTH AND STUDENT SUPPORT(a)**

		2005–06	2006–07	2007–08	2008–09
Youth Allowance (YA)					
Full-time students	no.	274 050	266 383	256 634	278 664
Other(b)	no.	75 186	68 698	64 907	82 907
Total YA population	no.	349 236	335 081	321 541	361 571
Total YA payments	\$'000	2 101 265	2 073 725	2 036 141	2 500 764
Austudy(c)					
Recipients	no.	27 728	27 869	28 776	34 175
Total payments	\$'000	217 765	217 540	227 894	353 500
ABSTUDY(c)					
Recipients(d)	no.	35 045	34 489	33 776	34 612
Total payments	\$'000	154 973	155 603	157 934	191 026

(a) Number of recipients in June.

(b) Job seekers and Part-time students - including those undertaking full-time training/agreement study.

(c) Consistent with other recipient numbers, the number of Austudy and ABSTUDY recipients has, since 2007–08, been reported as a point-in-time population. To allow comparison between previous years, both sequences have been revised back to June 2006 using this methodology.

(d) Recipient numbers for ABSTUDY are reported on a whole of calendar year basis. Note: Australian Apprentices became eligible for income support from 1 July 2005 and are included in the above figures.

Source: Department of Education, Employment and Workplace Relations.



## **Youth services and support**

Young job seekers can receive assistance in finding employment through Job Services Australia, which replaced the previous Job Network on 1 July 2009. All young people aged 15–20 years not in full-time education and who are registered with Centrelink as looking for work can access the full range of employment services, whether they receive income support or not. Across Australia there are Job Services Australia providers that assist youth with their skills development to obtain sustainable employment and there are Job Services Australia providers that are youth specialists .

Young job seekers with complex or multiple non-vocational barriers, such as mental illness, homelessness and social problems, can now access employment services immediately and access funds for interventions such as counselling, help with crisis accommodation or referrals to specialist support services.

Young job seekers with a disability also have access to Disability Employment Services. Providers of this service can work on early intervention partnerships with schools, so that eligible students with a disability can access the help they need to transition from school to employment.

Other programs are available to help disengaged and disadvantaged young people to improve their level of engagement with their families and community to overcome barriers to participation in education and employment. These programs include the National Green Jobs Corps, Mentor Marketplace, YouthLinx, Youth Development and Support Transition to Independent Living Allowance, Indigenous Youth Mobility, Career Advice Australia, Australian Apprenticeships and Australian Apprenticeship Access Program, and Strengthening and Supporting Families Coping with Illicit Drug Use.

## **Families**

Families form the basic unit of home life for most Australian people. The level of family assistance provided by the Australian Government has increased significantly over recent years. Payments to assist families include FTB; Child Care Benefit, Child Care Tax Rebate, Jobs, Education and Training Child Care fee assistance; and the Maternity Payment; with the highest rates

of payment going to low-income families. The Australian Government also funds counselling services to help keep families together.

## **Family payments**

Family assistance policies assist with the costs of raising children, including newborns, in ways that recognise the needs and choices of single and dual income families.

FTB Part A helps families with the cost of raising dependent children. It is paid to eligible families with dependent children up to 21 years, and young people between 21 and 24 years who are studying full time. Payments are made for each dependent child who is not receiving Youth Allowance or a similar payment. FTB Part A is subject to a family income test and provides access to supplementary payments, including Rent Assistance, Large Family Supplement and Multiple Birth Allowance. There is also a supplement payable after the end of the financial year.

FTB Part B provides extra assistance for families with only one main income earner and for sole-parent families. Payment to a family is based on the age of the youngest child, and is assessed on the income of the family's second income earner. It is paid per family, not per dependent child. Families must have at least one dependent child aged under 16 years, or aged 16–18 years who is studying full time. The child must not be receiving Youth Allowance or similar payment. FTB Part B has a higher rate of payment where the youngest child is under five years of age. There is also an end of year supplement.

FTB payments are paid through the Family Assistance Office or the tax system. As at the end of June 2009, approximately 1.8 million families with 3.4 million children received FTB Part A, and 1.4 million families received FTB Part B via fortnightly payments from the Family Assistance Office.

Maternity Payment (renamed Baby Bonus from 1 July 2007) is available to families following the birth (including still birth) or adoption of a baby up to the age of two years. Maternity Payment recognises the extra costs incurred at the time of a new birth or the adoption of a very young child and is not income tested.

## 9.22 FAMILY ASSISTANCE

		2005-06	2006-07	2007-08	2008-09
Family Tax Benefit					
Centrelink					
Recipients(a)					
Part A – fortnightly instalments(b)	no.	1 811 826	1 769 091	1 734 000	1 773 000
Part B – fortnightly instalments(b)	no.	1 372 693	1 376 917	1 359 000	1 365 000
Lump sum payments(c)	no.	56 865	na	62 503	80 774
Claims lodged with ATO but to be paid by the FAO	no.	9 759	8 262	13 177	24 015
Total payments (Part A and Part B)(d)	\$'000	13 534 246	14 042 785	14 143 858	17 258 654
Australian Taxation Office					
Recipients(a)(e)					
Paid on assessment	no.	134 535	145 276	150 875	159 585
Payments					
Paid on assessment(e)	\$'000	444 000	489 000	—	—
Reconciliation credits(d)(e)	\$'000	1 289 000	1 478 000	1 661 000	1 677 000
Family Assistance Legislative Amendment (more help for families - one-off payments)					
Family Assistance Scheme	\$'000	22 697	2 130	..	..
Baby Bonus (Previously named Maternity Payment)					
Recipients	no.	268 751	286 770	285 000	278 000
Payments(f)	\$'000	855 039	1 161 616	1 213 174	1 399 926
Maternity Allowance					
Recipients	no.	..	..	na	na
Payments(f)	\$'000	..	..	na	na
Maternity Immunisation Allowance					
Recipients	no.	219 775	223 567	260 000	269 000
Payments(f)	\$'000	49 843	56 234	61 290	50 411
Double Orphan Pension					
Recipients	no.	1 312	1 330	1 400	1 400
Payments(f)	\$'000	2 669	2 835	3 038	3 105

.. not applicable

— nil or rounded to zero (including null cells)

na not available

(a) Recipients who claimed assistance using more than one payment method for the year are included in each category.

(b) This provides a count of the customers eligible for payment at the time of data extraction (in June of the relevant tax year). It does not show all the customers who are eligible throughout the course of the year.

(c) Figures for lump sum payments refer to payments made in the relevant tax year ending 30 June for the FTB entitlement for the previous year.

(d) This refers to payments to customers who received FTB via fortnightly instalment from the FAO but were paid top-ups by the ATO after they lodged their tax return and were reconciled. Reconciliation credits from the 2004-05 financial year also include FTB Part A supplement.

(e) Number of recipients and expenditure refer to FTB payments made by the ATO within the relevant financial year.

(f) Expenditure refers to total payments to end of June of the relevant tax year.

Source: Department of Families, Housing, Community Services and Indigenous Affairs.

Other payments to families include Maternity Immunisation Allowance and Double Orphan Pension.

Table 9.22 shows the number of recipients of, and the expenditure on, family assistance.

### Services for families

The Family Support Program brings together key existing family, children and parenting services that share a common interest in supporting Australian families, parents and children.

These services include:

- Family Relationship Services
- Strengthening Families Program funded under the National Illicit Drug Strategy
- Communities for Children Initiative
- Invest to Grow
- Child Care Links
- Responding Early Assisting Children
- Indigenous Children Services
- Playgroup
- Indigenous Parenting Support Services.

In bringing these services together, the Family Support Program will provide a more coordinated and flexible approach to delivering support to families and children. The services offered through the Family Support Program will work with parents and children navigating life transitions, vulnerable and at risk families and children in highly disadvantaged communities, and families and children experiencing separation and divorce.

## Children

### Child Support Scheme

The Child Support Agency (CSA) manages the assessment, collection and enforcement of child support liabilities. It aims to ensure that parents continue to financially support their children after separation, according to their capacity. The total child support liabilities in 2008–09 were \$2.9 billion. Child support associated with parents who elect to transfer payments privately amounted to \$1.7 billion in 2008–09. The child support transferred or credited against a liability by CSA was \$1.1 billion in 2008–09.

### Assistance with child care costs

The Department of Education, Employment and Workplace Relations (DEEWR) develops policies that give more children access to early childhood development support, education and family care.

Access to child care is vital for many families to enable them to participate effectively in the workforce. Child-care services include long day care, family day care, in home care, outside school hours care, vacation care, and occasional care. Flexible services that can combine various models of care are available to meet the needs of families in rural and remote areas.

There are two main forms of payment for child-care support:

- *Child Care Benefit (CCB)* helps families with the cost of child care, and provides financial assistance that is proportionally higher for lower income families. Eligible families can have CCB paid directly to the approved child-care service to reduce their child-care fees. Alternatively, they can receive CCB as a lump sum at the end of the financial year.
- *Child Care Tax Rebate (CCTR)* is a payment available to working families using approved child care for work, training or study purposes.

From the 2006–07 and 2007–08 financial years, eligible families were paid their CCTR through the Family Assistance Office as an annual payment, rather than through the tax system. This meant that families who previously could not access the full benefit of the CCTR due to low or no tax liability were able to claim the full 30% rebate.

In the 2008–09 Budget, the Australian Government announced the removal of the minimum rate of CCB, which was paid to all eligible families regardless of income, replacing it with an extended means-tested rate that tapers until the payment rate reaches zero. The income level at which the CCB cuts out depends on the number of children using approved child care. This measure came into effect on 1 July 2008.

Families with a CCB entitlement of zero due to their income level may still be eligible for the CCTR. The CCTR is not income-tested, so working families using approved child care can receive this assistance regardless of their income.

Previously, the CCTR covered 30 per cent of approved out-of-pocket child care costs, up to a maximum of \$4,354 per child per year. From July 2008, the rate of the rebate increased significantly so that it now covers 50 per cent of out-of-pocket costs up to a maximum of \$7,500 (indexed) per child per year. From July 2008, families have also been able to receive the CCTR as a quarterly payment rather than as an annual payment to ensure that it is provided closer to the time they incur their child care expenses. The first quarterly payments were made through the Family Assistance Office in October 2008.

### 9.23 CHILD CARE SUPPORT(a)

		2005-06	2006-07	2007-08	2008-09
<b>Child Care Benefit (CCB)</b>					
Approved service(a)	no.	734 600	749 500	798 000	na
Registered carers(b)	no.	58 200	52 000	60 200	na
Payments	\$'000	1 501 287	1 478 333	1 863 500	na
<b>Jobs Education and Training (JET) Child Care</b>					
Recipients(c)	no.	18 188	18 364	20 312	22 722
Payments	\$'000	21 658	43 035	46,281(est)	na

na not available

(a) Number of customers who used care over the financial year. Includes CCB paid to recipients as a reduction in service fees and potentially as a lump sum payment.

(b) CCB for registered care is paid at minimum rate.

(c) Number of customers assisted through JET Child Care fee assistance

Source: Department of Education, Employment and Workplace Relations.

*Jobs, Education and Training (JET) Child Care fee assistance* provides extra child care assistance to parents on income support who wish to undertake study, work or job search activities to enter or re-enter the workforce.

Table 9.23 shows the number of recipients of and expenditure on child-care support.

#### Child Care Services Support Program (CCSSP)

The CCSSP complements assistance provided to families through CCB. Funding to CCSSP was \$298m in 2007-08. The program supports the provision of sustainable, quality child care and provides information to assist families to make informed decisions about child care. CCSSP helps to improve access for children and families with special and or additional needs. CCSSP funding targets assistance to areas where a service may not otherwise be viable. This ensures similar services in similar circumstances receive the same funding.

#### Child Care Management System (CCMS)

Over \$73m was invested to develop the CCMS to provide the best information on child care supply and usage. CCMS was implemented progressively across child-care services from January 2008 through to 30 June 2009. CCMS brings all approved child-care providers online to standardise and simplify the administration of CCB.

#### Outside School Hours Care for Teenagers with Disability

This activity assists teenagers with disability, aged 12 to 18 years, and their families by providing flexible outside school hours care. Outside schools hours care includes before, after and holiday care. In the 2009 Budget, the Australian Government announced a total of \$5.1 million in additional funding over four years to the 2012-13 financial year, to extend Outside School Hours Care for Teenagers with Disability, bringing total funding to \$27.629m over the four years.

#### Helping Children with Autism Package

The Australian Government is committed to providing improved support for children with autism spectrum disorders (ASDs), their families and carers. To help address the need for support and services for children with ASDs, the Australian Government is delivering the \$190 million Helping Children with Autism (HCWA) package. This is the first national initiative to help families deal with this challenging disorder and is a major breakthrough in support for children and their families and carers.

The package includes early intervention funding, autism advisors to provide advice, information and support following diagnosis, workshops, an ASD website and 150 PlayConnect Playgroups specifically for families and children with ASDs.

To date, Autism Advisors have supported 5,628 children and 4,104 children have accessed early intervention funding.

## Communities

The strength of community functioning has a large impact on individual, family and community wellbeing. Voluntary work and the way people use their time can impact on strength of community functioning. All levels of government seek to support and strengthen communities through provision of services, either directly or by subsidising the activities of third parties.

### Community Investment Program

The Australian Government provided \$63m in 2008–09 for the Community Investment Program, which builds social inclusion for vulnerable people by supporting organisations to recognise, evaluate and address key problems in communities. Key strategies under the program included:

- The former Local Answers initiative, which aimed to strengthen disadvantaged communities by funding local, small-scale, time-limited projects that help communities to identify opportunities to develop skills, support children and families and foster proactive communities. One hundred and five projects across Australia received an extension of funding under Local Answers in 2008–09
- The National Secretariat, which provides financial support for peak bodies to allow them to contribute to government policy and service delivery, and communicate government information to their memberships. The National Secretariat provided funding for 21 peak bodies in 2008–09
- Volunteer Grants, which provides grants of up to \$5,000 each to community organisations to allow them to purchase small equipment items to assist and support their volunteers, and contribute to reimbursing fuel costs incurred by volunteers in carrying out their voluntary work. In 2008–09, the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) supported Australian volunteers by providing \$21 million in discretionary grants to more than 7,200 volunteering organisations under the program

- Volunteer Management, which provides funding to Volunteer Resource Centres across Australia to provide quality volunteer management and training activities, as well as assistance and training to organisations that use volunteers. Volunteer Management funding supported 50 Volunteer Resource Centres in 2008–09.

### Financial inclusion and capability

In 2008–09, \$65.3 million in funding through the Financial Management Program (FMP) supported community organisations to improve the financial self-reliance and wellbeing of individuals and families. Assistance includes financial counselling, money management information and education, support for people dealing with a financial crisis and finding ways to minimise problem gambling.

In 2008–09, 746,810 people accessed support services funded under the FMP.

The aim of the FMP is to deliver financial support services where the individual is at the centre and Australian Government and non-government services work in partnership to help people achieve financial and social wellbeing. Service strategies include:

### Emergency Relief

Emergency Relief services provide support to address immediate needs in time of crisis. Assistance often includes food parcels and clothing, transport, chemist vouchers, help with accommodation, payment of bills, budgeting assistance and sometimes cash. Importantly, Emergency Relief agencies provide appropriate referrals to other services that help to address underlying causes of financial crisis.

### Commonwealth Financial Counselling

Financial counsellors help people in financial difficulty address their financial problems and make informed choices through provision of information; advocacy and/or negotiation; referral; community education and networking/liaison.

### Money Management

Money Management services currently operate in remote communities, predominantly supporting Indigenous people including Income Management participants. They provide clients

with education and information to help them manage their money. They do not provide financial advice or deal with complex financial/legal matters and will facilitate access to financial counsellors for help with complex issues.

### **Information on saving for retirement and retirement investments**

The National Information Centre on Retirement Investments (NICRI), an independent body funded by the Australian Government, provides the public with free information on planning and saving for retirement, investment options and effective use of financial resources in retirement.

### **Research into problem gambling**

The Australian Government works in partnership with State and Territory Governments through the Ministerial Council on Gambling (MCG) to develop a national approach to problem gambling. The Commonwealth provides funding for the MCG's national research program, Gambling Research Australia. The Commonwealth also commissions research into issues that have national impact.

### **Closing the Gap – Northern Territory – income management**

In 2008–09, FaHSCIA continued to work on the implementation of income management as part of the Northern Territory Emergency Response (NTER). Income management directs 50 per cent of certain income support and family payments to agreed priority expenses such as food, utilities and clothing. Income management is intended to ensure that payments meant to benefit children are used for the benefit of children and are not directed towards harmful behaviours. At 26 June 2009, over 15,500 individuals were on income management as part of the NTER. The Basics Card was introduced in September 2008 to allow customers of income management greater flexibility in where they spend their income managed funds.

### **Welfare Payments Reform – Child Protection Scheme of Income Management, Voluntary Income Management and School Attendance and Enrolment support package**

The Child Protection Scheme of Income Management (CPSIM) and Voluntary Income Management (VIM) are available in Kimberley WA and in Perth metropolitan area. CPSIM and VIM aim to encourage socially responsible behaviour and to enhance the well-being of children. Under CPSIM, Western Australia's Department of Child Protection can refer a person to Centrelink for income management where the poor use of existing financial resources wholly or partially contributes to child protection issues.

VIM allows people to volunteer for income management if they feel it would assist them to better meet their financial responsibilities, or contribute to the wellbeing of their children or children in their community. At 19 June 2009, there were almost 200 CPSIM and VIM customers.

A vast majority (over 80 per cent) of income managed funds have been allocated towards food, housing costs and clothing by income management customers.

### **Communities in harmony**

A number of Australian Government programs have been established to encourage greater social integration of communities. The National Action Plan aims to build social cohesion, harmony and security. The Living in Harmony program promotes community harmony and addresses issues of racial, religious and cultural intolerance within Australia. FaHCSIA's 'Bringing Communities Together' works with different groups within the community.

Support for newly arrived migrants includes Newly Arrived Youth Support Services, Family Relationship Services for Humanitarian Entrants, Crisis Payment and child care inclusion programs.

The Family Community Network Initiative aims to enhance the capacity of communities and services to work together to address needs. It is administered by FaHCSIA and is currently primarily focussed on supporting Indigenous communities participating in the COAG Indigenous Community Coordination Pilots around Australia.

## Rural and remote support and services

Many rural and regional communities face economic challenges, declining population, lack of development opportunities, or high levels of unemployment and social disadvantage. Initiatives have been introduced to support employment and economic security for rural families, and economic sustainability for rural communities. Financial assistance packages are available for farmers, businesses, Indigenous and rural communities. In addition, Remote Area Allowance provides extra help for people in remote areas and is paid fortnightly along with the relevant pension or payment. At June 2008, there were 58,276 and, at June 2009, 59,259 recipients.

Severe drought has a profound impact on rural and regional communities, the environment and the broader Australian economy. Drought-affected farmers, rural communities and agriculture-dependent small businesses are being supported through income support, interest rate subsidies and free personal and financial counselling.

## Natural disasters

The Australian Government provides a coordinated approach to delivering recovery assistance in response to onshore and offshore disasters and critical incidents. While the primary role for protecting the community and property in response to domestic disasters rests with state and territory governments, the Australian Government supports the states and territories through programs and measures, including the:

- Natural Disaster Relief and Recovery Arrangements (NDRRA)
- provision of assistance, when requested, under agreed national plans (e.g. Commonwealth Disaster Response Plan)
- provision of tailored disaster recovery financial and other assistance, such as the Australian Government Disaster Recovery Payment, through the Australian Government Disaster Recovery Committee (AGDRC).

The Natural Disaster Relief and Recovery Arrangements (NDRRA) are an Australian Government program that assists states and

territories with the financial costs associated with natural disaster relief and recovery. The NDRRA enables the early provision of assistance to individuals and communities and supports the recovery of a community's economic base following a natural disaster. A state or territory may claim NDRRA funding if:

- a natural disaster occurs
- state or territory relief and recovery expenditure for that event exceeds the small disaster criterion of \$240,000
- the state or territory notifies Emergency Management Australia of the event.

Under the NDRRA, three states submitted claims during the 2008–09 financial year of which the Australian Government paid \$297 million. The claims submitted were for flooding, storm and cyclone events in the Northern Territory; tropical cyclones, flooding, storm and bushfire events in Queensland; and bushfire, flood and storm events in Victoria including the February 2009 Victorian bushfire event.

A whole-of-Australian Government assistance package was developed in response to the devastating Victorian bushfires in February 2009. The package addressed the social, economic, physical and environmental challenges that faced bushfire-affected individuals, families, communities, businesses, and local governments alike. The range of services included financial assistance through the Australian Government Disaster Recovery Payment (AGDRP) and an Income Recovery Subsidy, case management and mental health services, small business and primary producer assistance, rebuilding the tourism sector in affected areas and supporting communities through the community recovery fund.

In 2008–09, the AGDRP supported 114,000 Australians adversely affected by Mumbai Terrorist attacks in November 2008, the South-east Queensland storms in November 2008, flooding in North Queensland in January and February 2009, the January and February 2009 Victorian bushfires and the May 2009 Northern New South Wales and South-east Queensland floods.

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# Indigenous disadvantage and selected measures of wellbeing

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Australia's Aboriginal and Torres Strait Islander peoples are disadvantaged across many areas of social concern. The disparity in outcomes between Indigenous and non-Indigenous Australians has been well-documented in recent reports, including the *2009 Overcoming Indigenous Disadvantage (OID) report*, commissioned by the *Council of Australian Governments (COAG)*. The 2009 OID report framework comprises six targets (as outlined below) set by COAG for closing the gaps in outcome for Indigenous people. In addition to the six COAG targets, there are six headline indicators and seven 'strategic areas for action'. Each strategic area for action includes a set of indicators, designed to show whether actions are making a difference, and to identify areas where more attention is needed.

This article adopts a similar structure to the 2009 OID report framework, providing information on the COAG targets, headline indicators and selected indicators relevant to the strategic areas for action. This article includes published data from the 2009 OID report and more recent information from the *2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS)* and the ABS causes of death collection.

## Indigenous estimated resident population

The ABS final estimated resident Indigenous population of Australia at 30 June 2006 was 517,000 people or 2.5% of the total population. This Indigenous population estimate was 14% higher than the 2006 unadjusted Census count (455,000). The adjusted population estimates take into account Indigenous people not counted in the Census, using the results of the *ABS Post Enumeration Survey (PES)*.

## COAG Targets

The six COAG targets are outlined below. The current status of selected performance indicators against these targets is presented in Table S9.1.

### Life expectancy at birth

Life expectancy is an indicator of the long-term health and wellbeing of a population. Closing the gap in life expectancy at birth between Indigenous and non-Indigenous people within a generation is a COAG target. Based on 2005–2007 data, the life expectancy at birth of Indigenous people was estimated to be 67.2 years for males and 72.9 years for females. This represents a gap between Indigenous and non-Indigenous life expectancy at birth of 11.5 years for males and 9.7 years for females. Note that these figures cannot be compared with previous data due to changes in the methodology for estimating life expectancy.

### Young child mortality

The COAG target for young child mortality is to halve the gap in mortality rates between Indigenous and non-Indigenous children (under five years of age) within a decade. The majority of childhood deaths are of infants under 12 months of age. For the period 2003–2007, the Indigenous infant mortality rate was 9.7 deaths per 1,000 live births. This represented an improvement from 1997–1999, but still remained more than twice the non-Indigenous infant mortality rate.

### Early childhood education

Access to, and participation in, good quality early childhood education provides children with a head start at school. The COAG target for early childhood education is to provide access to quality early childhood education, within five years, for all Indigenous four year olds, including those in remote communities.

In 2006, one-third (33%) of Indigenous children aged three to five years were enrolled in preschool, compared with 43% of non-Indigenous children. However, since the term “pre-school” was left to the respondent to interpret, these data should be interpreted with caution.

### **Reading, writing and numeracy**

The COAG target is to halve the gap between Indigenous and non-Indigenous children in reading, writing and numeracy within a decade. Data from the *Ministerial Council on Education, Employment, Training and Youth Affairs* (MCEETYA) show that in 2008, a smaller proportion of Indigenous students met the national minimum standards for reading, writing and numeracy compared to non-Indigenous students. Between 2001 and 2007, the proportion of Indigenous Year 7 students meeting national minimum standards remained unchanged at around 65% for reading, 74% for writing and 49% for numeracy. The gaps between Indigenous and non-Indigenous students achieving Year 7 benchmarks in 2008 were 23 percentage points for reading, 25 percentage points for writing and 18 percentage points for numeracy.

### **Year 12 Attainment**

Young people who complete Year 12 (or equivalent) are likely to have better employment options than those who do not. This COAG target is to halve the gap between Indigenous and non-Indigenous people in Year 12 attainment or equivalent attainment rates by 2020. In 2006, the proportion of Indigenous 19 year olds who had completed Year 12 (or equivalent) was half that of non-Indigenous 19 year olds (36% compared with 74%).

### **Employment**

Participation in employment is associated with increased income levels, better health outcomes, improved educational attainment and enhanced self esteem. The COAG target for employment is to halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade. Expressed as a proportion of people aged 15–64 years in the labour force (employed plus unemployed), the Indigenous unemployment rate decreased from 20% in

2001 to 16% in 2006. During the same period, the non-Indigenous unemployment rate for people aged 15–64 years also decreased, from 7% to 5%. In these data, known participants in CDEP (Community Development Employment Projects) were counted as being employed.

## **Headline Indicators**

### **Post-secondary education – participation and attainment**

Attaining a qualification from a formal course of study can have a major impact on the range of opportunities available to people. In 2006, 5% of Indigenous people aged 20–24 years were attending university, with a further 5% attending a Technical and Further Education institution (TAFE). Among Indigenous people aged 20–64 years, 12% had completed a Certificate III or IV (which provide a broader knowledge base and the skills necessary to perform a wider range of skilled tasks than a Certificate I or II). This was an increase from 8% in 2001 and represented a decrease in the gap between Indigenous and non-Indigenous levels of attainment. Completion rates for Bachelor degrees, and Advanced diplomas and Diplomas increased only marginally for Indigenous people (3% to 4% for both).

### **Disability and chronic disease**

In 2006, after adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous people required assistance with one or more core activities (i.e. self-care, mobility and/or communication) at almost twice the rate of non-Indigenous people. In turn, Indigenous people aged 15 years or over were 1.2 times more likely than non-Indigenous people to provide unpaid care to a person with a disability, long-term illness or problems related to old age.

### **Household income**

Household income reflects the economic resources available to household members and therefore their standard of living. In 2006, the median gross weekly equivalised household income for Indigenous households was \$398.

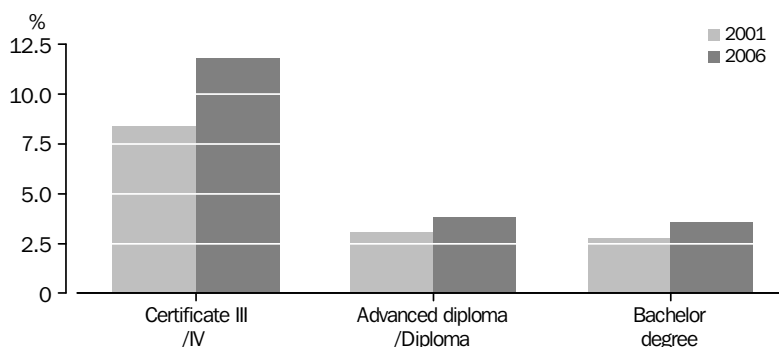
### S9.1 SELECTED PERFORMANCE INDICATORS: INDIGENOUS AND NON-INDIGENOUS PERSONS

	Indigenous	Non-Indigenous	Gap	Rate Ratio(a)
Male life expectancy (2005–2007)	67.2 yrs	78.7 yrs	11.5 yrs	0.9
Female life expectancy (2005–2007)	72.9 yrs	82.6 yrs	9.7 yrs	0.9
Infant mortality rate (2003–2007)	9.7 per 1,000 live births	4.4 per 1,000 live births	5.3 per 1,000 live births	2.2
Pre-school participation rate (2006)	33%	43%	10%	0.8
Reading (Year 7, 2008)	72%	95%	23%	0.8
Writing (Year 7, 2008)	68%	93%	25%	0.7
Numeracy (Year 7, 2008)	79%	96%	18%	0.8
Year 12 attainment (19 yr olds, 2006)	36%	74%	38%	0.5
Unemployment (2006)	16%	5%	11%	3.1

(a) An Indigenous to non-Indigenous rate ratio of 1.0 indicates parity, while rate ratios other than 1.0 indicate relative Indigenous advantage/disadvantage, depending on the indicator. For positive indicators such as life expectancy, a rate ratio of less than 1.0 indicates relative Indigenous disadvantage, whereas for negative indicators such as the infant mortality rate, a rate ratio greater than 1.0 indicates relative Indigenous disadvantage.

Source: ABS data available on request, *Overcoming Indigenous Disadvantage 2009*; Infant mortality data from ABS (unpublished), ABS causes of death collection.

### S9.2 POST-SECONDARY ATTAINMENT BY COURSE LEVEL, Indigenous persons aged 20–64 years—2001 and 2006



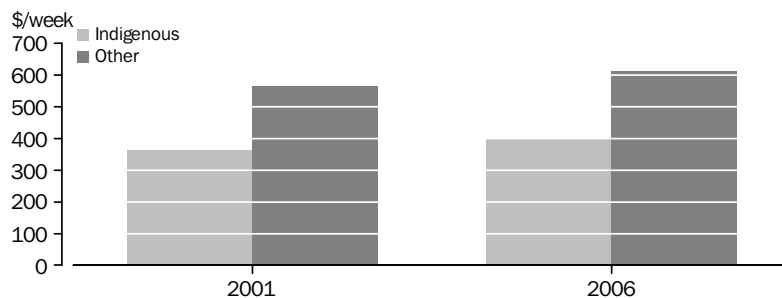
Source: ABS data available on request, 2001 and 2006 Censuses of Population and Housing.

This represented an increase in real terms of 9% (or \$33) since 2001. Median gross weekly equivalised household income for other households was about one-and-a-half times as high as income for Indigenous households.

### Substantiated child abuse and neglect

Results from the *Australian Institute of Health and Welfare (AIHW) Child Protection Notifications, Investigations and*

### S9.3 MEDIAN REAL GROSS WEEKLY EQUIVALISED HOUSEHOLD INCOME (2006 DOLLARS)(a)



(a) Adjusted for the effects of inflation using the Consumer Price Index for the September quarters 2001 and 2006.

Source: ABS data available on request, 2001 and 2006 Censuses of Population and Housing.

*Substantiations collection* indicate that in 2007–08, approximately 35 per 1,000 Indigenous children aged 0–16 years were victims of substantiated child abuse and neglect. This was an increase from 16 per 1,000 children in 2000–01. During the same period, the rate of substantiated child abuse and neglect among non-Indigenous children aged 0–16 years remained relatively constant (increasing from 5 to 6 children per 1,000). Measurements obtained must be interpreted with caution, as data are only for incidents that were officially reported and investigated by authorities. In addition, it is possible that increased substantiations of abuse may be the result of reduced tolerance in Indigenous families and communities of the abuse or neglect of children. In these instances, an increased rate would signify increased awareness and identification of the problem of abuse or neglect.

#### Family and community violence

In the 2008 NATSISS, around one-quarter (23%) of Indigenous people aged 15 years or over reported having experienced physical or threatened violence in the past 12 months. There was no significant change in the reported rates of physical or threatened violence for males or females between 2002 and 2008.

Family and community violence may be associated with a number of wider neighbourhood problems. Data from the NATSISS show that in 2008, 71% of Indigenous

people aged 15 years or over reported problems in their neighbourhood. The most common of these were dangerous or noisy driving (46%), alcohol (41%), theft (41%) and illegal drugs (36%).

#### Imprisonment and juvenile detention

Indigenous people continue to be over-represented in the criminal justice system, as both young people and adults. Data from the *ABS Prisoners in Australia collection* show that in 2008, after adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous people aged 18 years and over were 13 times as likely as non-Indigenous people of the same age to be in prison. In 2007, Indigenous juveniles aged 10–17 years were 28 times as likely as non-Indigenous juveniles to have been detained (403 per 100,000), compared with 14 per 100,000 (Taylor 2009).

#### Strategic areas for action

##### Early child development

Development during the early years of childhood is influenced by a number of factors. One key factor is the wellbeing of women during and after pregnancy. The health and lifestyle of women during pregnancy can shape the future development of their children. In the 2008 NATSISS, 92% of Indigenous mothers of children aged 0–3 years, reported having

#### S9.4 NEIGHBOURHOOD PROBLEMS BY REMOTENESS, INDIGENOUS PERSONS AGED 15 YEARS AND OVER, 2008

	Non-remote	Remote	Total
	%	%	%
Dangerous or noisy driving(a)	47.0	43.2	46.1
Alcohol	37.1	53.9	41.3
Illegal drugs	34.4	42.5	36.4
Theft(a) (b)	42.1	38.3	41.1
Vandalism/graffiti/damage to property(a)	35.2	35.7	35.3
Problems involving youths(c)	32.8	39.1	34.4
Levels of personal safety day or night(a)	13.5	14.7	13.8
Family violence	20.8	36.9	24.8
Assault	18.2	36.1	22.7
Sexual assault	10.3	15.8	11.7
Prowlers/loiterers(a)	19.1	19.1	19.1
Problems with neighbours(a)	15.1	16.1	15.4
Levels of neighbourhood conflict	11.6	21.5	14.1
None of the above(a)	26.7	23.1	25.8
<b>Persons aged 15 years and over ('000)(d)</b>	<b>245.6</b>	<b>81.5</b>	<b>327.1</b>

(a) Difference between remote and non-remote data are not statistically significant.

(b) Includes burglaries, theft from homes, motor vehicle theft, other theft.

(c) Includes youth gangs, lack of youth activity.

(d) Includes 'type of neighbourhood problem' not stated.

Source: ABS data available on request, 2008 National Aboriginal and Torres Strait Islander Social Survey.

attended check-ups while pregnant. Data on alcohol consumption and smoking during the mother's pregnancy was obtained from 79% of mothers with children aged 0–3 years. One in five (20%) Indigenous mothers of children aged 0–3 years reported having consumed alcohol during pregnancy and 42% had smoked tobacco.

The teenage birth rate is also an important indicator for early child development. Data from the *ABS Birth Registrations collection* show that in 2007, the birth rate for Indigenous mothers aged 15–19 years was 70 per 1,000 births. This rate has remained relatively stable over time (71 per 1,000 births in 2004). The birth rate for non-Indigenous teenage mothers was lower (14 per 1,000 births in both 2004 and 2007). Another key measure for this strategic area is low birth weight (that is, babies with a birth weight of less than 2500g). Data from the *AIHW National Perinatal Data Collection* show that in 2004–2006, the proportion of Indigenous babies with low birth weight was 13%, compared with 6% of non-Indigenous babies.

A key health problem for young Indigenous children is hearing impediments (most commonly as a result of recurrent middle ear

infections). In 2008, 9% of Indigenous children aged 0–14 years had ear or hearing problems. Results from the *2004–05 National Aboriginal and Torres Strait Islander Health Survey* (NATSIHS) and the 2008 NATSISS indicate that the prevalence of ear or hearing problems among Indigenous children did not change significantly over this period.

### Education and Training

High quality education has been linked to improved employment, income and health outcomes. One important measure of education and training is the apparent retention rates of students progressing from Year 7 or 8, to Year 9. Data from the *ABS Schools Australia collection* show that in 2008, 99% of Indigenous students in Year 7 or 8 continued to Year 9, however, a smaller proportion (89%) continued to Year 10. The retention rates for non-Indigenous students remained relatively unchanged (100% for both Year 9 and 10).

Another important measure of education and training relates to the successful transition of young people from school to work. In the 2008 NATSISS, around 41% of Indigenous people aged 15–24 years were studying, either full-time

or part-time. In addition, 28% were working (full-time or part-time) but not studying. However, around one-third (31%) of Indigenous people aged 15–24 years were neither studying nor working. This rate was significantly higher in remote areas than in non-remote areas (39% compared with 29%). Young people who are not engaged in education or work are at a greater risk of long-term future disadvantage.

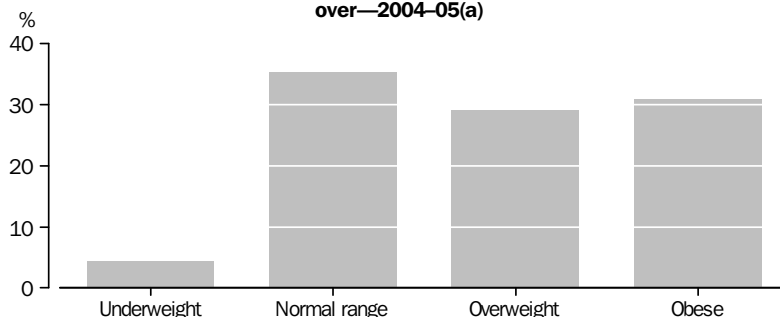
## Healthy lives

Health is a fundamental quality of life indicator. In the 2008 NATSISS, 44% of Indigenous people aged 15 years or over rated their health as excellent or very good, 34% rated their health as good and 22% rated their health as fair or poor. These proportions have not changed significantly since 2002.

Being overweight or obese is a key health risk factor. In the 2004–05 NATSIHS, self-reported height and weight data were used to calculate a *Body Mass Index* score for respondents. Results from the survey indicate that 29% of Indigenous adults were overweight and a further 31% were obese.

In 2004–05, after adjusting for differences in the age structures between the Indigenous and non-Indigenous populations, similar proportions of Indigenous and non-Indigenous adults were overweight. However, Indigenous adults were almost twice as likely as non-Indigenous adults to be obese. Indigenous adults who were obese were more likely to have heart/circulatory problems, diabetes and asthma than those who were overweight (ABS 2008).

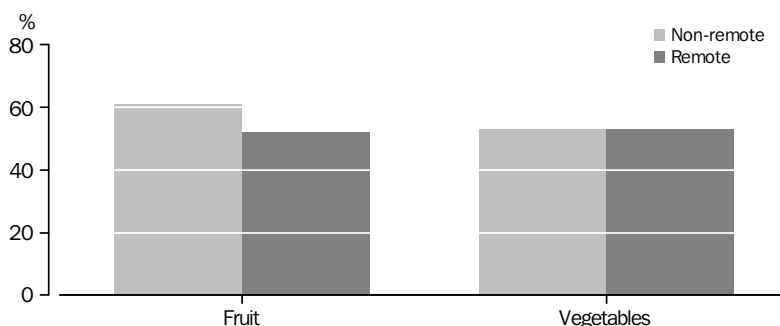
**S9.5 BODY MASS INDEX GROUPS, Indigenous persons aged 18 years and over—2004–05(a)**



(a) Proportions are based on persons for whom BMI could be calculated.

Source: ABS data available on request, 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

**S9.6 DAILY FRUIT AND VEGETABLE CONSUMPTION BY REMOTENESS, Indigenous children aged 1–14 years—2008**



Source: ABS data available on request, 2008 National Aboriginal and Torres Strait Islander Social Survey.

A key factor in reducing obesity rates in the population in the longer term lies in establishing healthy eating patterns among children, for example, encouraging regular consumption of fruit and vegetables. In 2008, more than half (59%) of Indigenous children aged 1–14 years were reported to eat fruit every day. This rate was significantly lower in remote areas than in non-remote areas (52% and 61% respectively). In addition, 53% of Indigenous children were eating vegetables daily. This rate did not differ significantly between remote and non-remote areas.

Tobacco smoking was the leading risk factor contributing to the burden of disease for Indigenous Australians in 2003 (Vos et al. 2007). In the 2008 NATSISS, 47% of Indigenous people aged 15 years and over were current smokers. The smoking rate for Indigenous people has decreased since 2002 when it was 51%. After adjusting for differences in the age structures between the Indigenous and non-Indigenous populations, Indigenous people were twice as likely as non-Indigenous people to be current smokers.

### Economic participation

The extent to which people participate in the economy is closely related to their living standards and broader wellbeing. It can also influence how individuals interact at the family and community levels. In 2006, 48% of Indigenous people aged 15–64 years were employed, compared with 43% in 2001. The proportion of non-Indigenous people aged 15–64 years who were employed also increased

during this period (68% in 2001 compared with 72% in 2006). Of those who were employed in 2006, 41% of Indigenous people were working part-time (compared with 31% of non-Indigenous employed people).

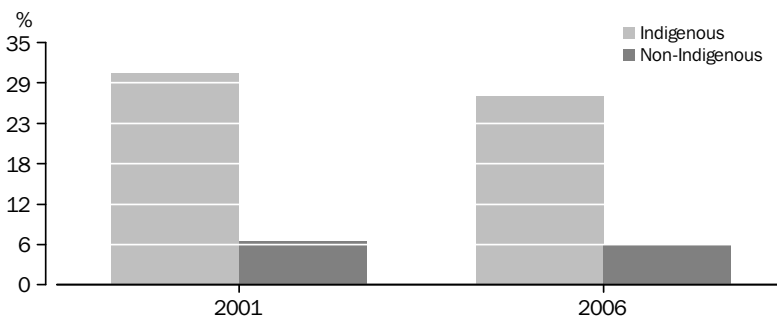
Home ownership is an indicator of wealth and saving, and is usually associated with employment and the income this generates. The proportion of Indigenous people living in homes owned or being purchased by a member of the household, increased from 26% in 2001 to 29% in 2006.

### Home environment

Poor living conditions can have a substantial impact on people's health and wellbeing. Overcrowding in housing is a problem experienced by many Indigenous people. Overcrowding places pressure on existing household infrastructure and may encourage the spread of infection and disease. While overcrowding remains a problem within Indigenous communities, the proportion of Indigenous people living in overcrowded housing decreased between 2001 and 2006 (from 31% to 27%). During the same period, the proportion of non-Indigenous people living in overcrowded housing was relatively unchanged (at about 6%).

Other important aspects of environmental health include access to clean water, working sewerage systems and a reliable supply of electricity. While many Indigenous people living in cities and large towns have regular

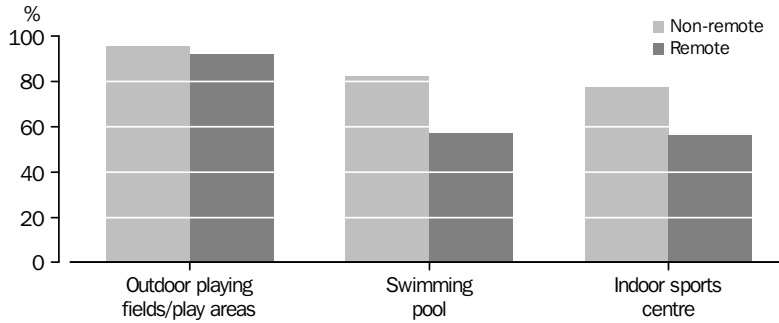
**S9.7 INDIGENOUS PERSONS LIVING IN OVERCROWDED HOUSING(a)—2001 and 2006**



(a) Based on the Canadian National Occupancy Standard for housing appropriateness.

Source: ABS data available on request, 2001 and 2006 Censuses of Population and Housing.

**S9.8 HOUSEHOLDS WITH ACCESS TO COMMUNITY SPORTING FACILITIES, BY REMOTENESS—2008**



Source: ABS data available on request, 2008 National Aboriginal and Torres Strait Islander Social Survey.

access to these utilities, problems with access are more prevalent for members of remote, discrete Indigenous communities. Data from the *Community Housing and Infrastructure Needs Survey* (CHINS) show that in 2006, there were about 82,300 Indigenous people living in 322 discrete Indigenous communities with a population of 50 people or more. In 2006, 59% of these people had experienced an interruption to their water supply in the previous 12 months. In addition, 40% of these people had experienced sewerage overflows or leakages and 81% had experienced an electricity interruption in the previous 12 months.

**Safe and supportive communities**

Participation in sporting activities brings people together and is associated with good physical and mental health. In 2008, almost half (47%) of Indigenous children aged 4–14 years, had been involved in organised sport in the last 12 months. This proportion was higher in non-remote areas (49%) than in remote areas (40%). Based on the 2008 NATSISS, 95% of Indigenous people were living in households that had access to outdoor playing fields and play areas. In addition, 76% of Indigenous people lived in households with access to a swimming pool in their community and 72% had access to an indoor sports centre. Access to these sporting facilities was significantly higher in non-remote areas than in remote areas.

Many Indigenous people have strong connections to their traditional country or homelands. In 2008, 72% of Indigenous people aged 15 years or over recognised an area as their homelands and 25% were currently living there. The vast majority of those not living in their homelands reported being allowed to visit there.

Communities can play an important role in providing support during times of crisis. In 2008, 89% of Indigenous people aged 15 years or over were able to get support from outside their household during a time of crisis. The most common sources of support were family (90%), friends (72%) and neighbours (31%).

High levels of drug or alcohol consumption may lead to problems for individuals and their communities, such as violence, crime and long-term health effects. In 2008, 37% of Indigenous people aged 15 years or over reported short-term risky/high risk alcohol consumption (binge drinking) in the two weeks before interview. In addition, one in six (17%) Indigenous people reported long-term risky/high risk alcohol consumption. Neither of these proportions had changed significantly since 2002. Data from the *Australian Institute of Criminology* (AIC) *National Homicide Monitoring Program* (NHMP) show that in 70% of Indigenous homicides over the period 1999–2000 to 2006–07, both the offender and the victim had consumed alcohol.

Illicit drug use is another risk factor for Indigenous people and their communities. In



2008, around one-quarter (24%) of Indigenous people aged 15 years or over living in non-remote areas stated using illicit drugs within the last year, similar to the rate stated in 2002 (26%). Data from the AIC NHMP show that 24% of Indigenous homicides over the period 1999–2000 to 2006–07 were associated with the use of drugs at the time of offence, compared with 34% of non-Indigenous homicides.

### **Governance and Leadership**

This strategic area of action focuses on both the leadership provided by governments in their engagement with Indigenous people and on the governance provided by Indigenous people and organisations to the communities they serve. The inclusion of this strategic area in the 2009 OID framework recognises that Indigenous people and organisations have a vital role to play in achieving measurable improvements in their economic, social and health outcomes.

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## HOUSING

Housing satisfies the essential needs of people for shelter, security and privacy. Shelter is recognised throughout the world as a basic human right. The adequacy or otherwise of housing is an important component of individual wellbeing. Housing also has great significance in the national economy, with its influence on investment levels, interest rates, building activity and employment.

In the 1920s, the Australian Government moved to provide financial assistance for access to home ownership for moderate and low income groups, and a number of policy initiatives over recent decades have focused on this goal. Governments have continued to actively promote home ownership as part of an overall policy directed at achieving people's self-reliance in housing, and a quality of housing adequate for their needs. Currently Australia has one of the highest rates of home ownership in the world. Governments also provide assistance to low income households to rent suitable and affordable housing.

The predominance of separate, free-standing houses situated on 'quarter-acre blocks' has historically been a feature of Australian urban development. More recently, governments have moved to promote higher housing density, to provide greater choice of housing types and to make better use of existing infrastructure.

This chapter provides information on the types of dwellings Australians live in, their tenure type and housing costs. It also looks at a range of factors associated with buying a home, including home loans, house prices and the characteristics of recent home-buyer households. It includes comparisons between states and territories and between households at different life cycle stages. Most of the statistics are from the *2007–08 Survey of Income and Housing*, conducted by the Australian Bureau of Statistics (ABS), and other ABS collections. Administrative data relating to housing assistance are also included.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Types of dwellings

A small proportion of Australians live in institutional settings such as hostels, boarding houses, residential colleges, staff quarters, prisons, corrective and detention institutions, nursing homes and other welfare institutions. However, the vast majority (around 98%) are members of households living in private self-contained dwellings such as houses, flats or units.

Of the 8.1 million households living in private dwellings in 2007–08, 78% were living in separate houses, 13% in flats, units or apartments, and 9% in semi-detached, row or terrace houses or townhouses.

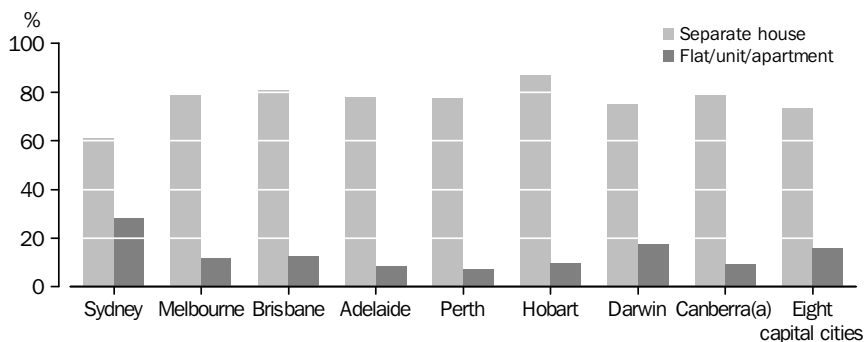
For Australia's five most populous cities (Sydney, Melbourne, Brisbane, Perth and Adelaide) the proportion of households living in separate houses ranged from 61% in Sydney to 81% in

Brisbane. The average across all eight capital cities was 73%. Outside of capital cities, the proportion of households living in separate houses was higher – more than 85% in all states except Queensland. Higher density housing was most common in capital cities, particularly in Sydney, where approximately one in four households were living in flats, units or apartments in 2007–08 (graph 10.1).

Separate houses are generally larger and have more bedrooms than other dwelling types. Typically, separate houses have three or four bedrooms; semi-detached houses have two or three bedrooms; and flats, units or apartments have one or two bedrooms.

The three-bedroom house is by far the most common type of dwelling in Australia. In 2007–08, 41% of all households were living in separate houses with three bedrooms, while a further 28% were living in houses with four or more

**10.1 CAPITAL CITY HOUSEHOLDS, By dwelling structure—2007–08**



(a) All ACT households.

Source: *Housing Occupancy and Costs, Australia (4130.0)*.

**10.2 ALL HOUSEHOLDS, By dwelling structure and number of bedrooms—2007–08**

	Semi-detached/row or terrace			All households(a)	
	Separate house '000	house/townhouse '000	Flat/unit/apartment '000	'000	%
One bedroom	39.1	53.8	228.6	331.3	4.1
Two bedrooms	679.1	279.1	639.8	1 609.2	19.9
Three bedrooms	3 290.7	286.5	159.7	3 739.6	46.3
Four or more bedrooms	2 300.4	75.3	**2.6	2 381.0	29.5
<b>Total(b)</b>	<b>6 311.3</b>	<b>695.5</b>	<b>1 042.0</b>	<b>8 077.3</b>	<b>100.0</b>

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use  
(a) Includes other dwelling structures.

(b) Includes bed-sits and dwellings with no bedrooms.  
Source: ABS data available on request, Survey of Income and Housing.

bedrooms (table 10.2). In total, 76% of households were living in dwellings (mainly houses) with three or more bedrooms; 20% were living in two-bedroom dwellings (houses, row or terrace houses, townhouses, flats, units or apartments); and 4% were living in one-bedroom dwellings (mainly flats, units or apartments).

## Housing utilisation

While Australian households are becoming smaller on average, dwelling size (as indicated by the number of bedrooms) is increasing. The average number of persons per household has declined from 3.1 in 1976 to 2.6 in 2007–08. In the same period, the proportion of dwellings with four or more bedrooms has risen from 17% to 29% and the average number of bedrooms per dwelling has increased from 2.8 to 3.1.

In 2007–08, most households enjoyed relatively spacious accommodation. For example, 86% of lone-person households were living in dwellings with two or more bedrooms; 75% of two-person households had three or more bedrooms; and 35% of three-person households had four or more bedrooms. Over a fifth (21%) of three-bedroom dwellings, and 8% of four-bedroom dwellings, had only one person living in them (table 10.3).

The Canadian National Occupancy Standard (CNOS) is widely used internationally as an indicator of housing utilisation. The measure assesses the bedroom requirements of a household by specifying that:

- there should be no more than two persons per bedroom

- children less than 5 years of age and of different sexes may reasonably share a bedroom
- children less than 18 years of age and of the same sex may reasonably share a bedroom
- single household members aged 18 years and over should have a separate bedroom, as should parents or couples
- a lone person household may reasonably occupy a bed sitter.

The CNOS compares the number of bedrooms required with the actual number of bedrooms in the dwelling. Households living in dwellings where this standard cannot be met are considered to be overcrowded.

Only 2.6% of Australian households in 2007–08 were assessed as needing one or more extra bedrooms to meet this occupancy standard. The proportion of households experiencing overcrowding was highest among households with five or more members (17%), and among households living in one-bedroom (6%) or two-bedroom (4%) dwellings.

In contrast, 77% of households had one or more bedrooms above the number required to meet the standard. The proportion of households with spare bedrooms was highest among two-person households and households living in dwellings with four or more bedrooms (both 90%).

As households pass through different life cycle stages, particularly with having children and later children leaving home, their utilisation of housing changes. While having spare bedrooms indicates a capacity to accommodate more people in reasonable comfort, it does not necessarily mean that dwellings are not being fully utilised.

### 10.3 ALL HOUSEHOLDS, By number of bedrooms and number of persons—2007–08

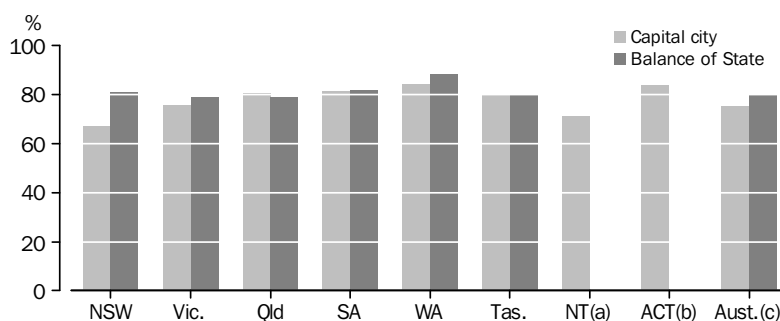
	One bedroom	Two bedrooms	Three bedrooms	Four or more bedrooms	All households(a)
	'000	'000	'000	'000	'000
Lone person	267.3	721.0	803.1	197.0	2 004.1
Two persons	58.3	619.7	1 432.7	625.2	2 735.9
Three persons	**3.0	174.0	681.1	456.7	1 314.9
Four persons	**1.5	76.3	592.3	587.9	1 258.3
Five or more persons	**1.2	*18.2	230.4	514.2	764.1
<b>Total</b>	<b>331.3</b>	<b>1 609.2</b>	<b>3 739.6</b>	<b>2 381.0</b>	<b>8 077.3</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Includes bed-sits and dwellings with no bedrooms.  
Source: ABS data available on request, Survey of Income and Housing.

#### 10.4 HOUSEHOLDS WITH ONE OR MORE SPARE BEDROOMS—2007–08



(a) Balance of NT estimates are not sufficiently reliable to be shown separately. (b) Balance of ACT estimates are not available. (c) Includes NT balance.

Source: ABS data available on request, *Survey of Income and Housing*.

Households may put these 'spare' rooms to various uses (e.g. study, office, gymnasium, craft or hobby room, children's play room, guest bedroom or store room). Some may provide each child with a separate bedroom regardless of their age or sex.

In capital cities, the proportion of households with one or more spare bedrooms ranged from 67% in Sydney to 84% in Perth and Canberra (graph 10.4), while the proportion across all capital cities was 75%. Outside of capital cities, the proportion of households with spare bedrooms was higher at 80% – possibly associated with higher proportions of separate houses in these areas. Conversely, overcrowding was more common in capital cities. In 2007–08, 3% of capital-city households were in need of one or more bedrooms compared with 2% of households in the rest of Australia. Sydney had the highest overcrowding rate (5%), and also the highest proportion of flats, units and apartments.

### Home owners and renters

The legal rights and obligations that households have in relation to the dwelling in which they live vary considerably according to tenure type. For example, those who own their home have greater security of tenure than most renters, whose occupancy rights are subject to review at relatively frequent intervals. Owners also have more freedom than renters to modify the dwelling to suit their specific needs and tastes, to keep pets, take in boarders or run a business from home. In the course of repaying their home

loans, owners accumulate wealth in the form of home equity which can then be used to secure finance for other purposes.

On the other hand, renting can have advantages over home ownership, such as greater flexibility to move elsewhere at short notice, lower housing costs than many owners repaying a mortgage, and the opportunity to invest in other assets which may yield higher returns than home ownership. Households renting from a state or territory government housing authority (public renters) generally enjoy lower housing costs and greater security of tenure than those renting from a private landlord.

At the 1966 Census of Population and Housing, 71% of all occupied private dwellings were either owned outright or owned with a mortgage by their occupants. Following the 1967 Referendum and changes to the Census Indigenous question in 1971, the Indigenous count increased 45%. Lower average Indigenous home ownership rates at that time, compared to the population as a whole, contributed in part to the decrease, to 69%, in average home ownership recorded in the 1971 Census. Since then the rate of home ownership in Australia, as measured in the Census, has ranged between 68% and 70% (table 10.5).

In the 2007–08 Survey of Income and Housing, 33% of households owned their homes outright (i.e. without a mortgage) and 35% were owners with a mortgage. A further 24% were renting from a private landlord and 5% were renting from a state or territory housing authority.

### 10.5 ALL OCCUPIED PRIVATE DWELLINGS, By tenure type

Year	Owner without a mortgage	Owner with a mortgage	All owner occupied private dwellings	Renter	Other Tenure	Total (a)	Proportion of owner occupied private dwellings
	'000	'000	'000	'000	'000	'000	%
1966(b)	na	na	2 231.9	835.1	59.6	3 126.5	71.4
1971(b)	na	na	2 468.9	1 001.3	119.3	3 589.5	68.8(c)
1976	1 306.3	1 437.8	2 761.5(d)	1 044.5	232.5	4 040.5	68.3(e)
1981	1 548.9	1 542.9	3 178.9(d)	1 164.5	190.6	4 534.0	70.1
1986	1 981.9	1 604.4	3 586.3	1 334.4	174.1	5 094.8	70.4
1991	2 362.0	1 561.3	3 923.2	1 560.6	210.3	5 694.2	68.9
1996	2 658.0	1 656.1(f)	4 314.0	1 866.0	67.8	6 247.8	69.0
2001	2 810.9	1 872.1(f)	4 683.0	1 953.1	101.3	6 737.4	69.5
2006	2 478.3	2 448.2(f)	4 926.5	2 063.9	65.7	7 056.1	69.8

na not available

(a) Excludes not stated.

(b) Separate figures for owners without a mortgage and owners with a mortgage are not available for these years.

(c) Following the 1967 Referendum and a subsequent change in the Indigenous question wording in the Census in 1971, the Indigenous census count increased 45%. This change made a small contribution to the decrease in the measured proportion of owner occupied private dwellings.

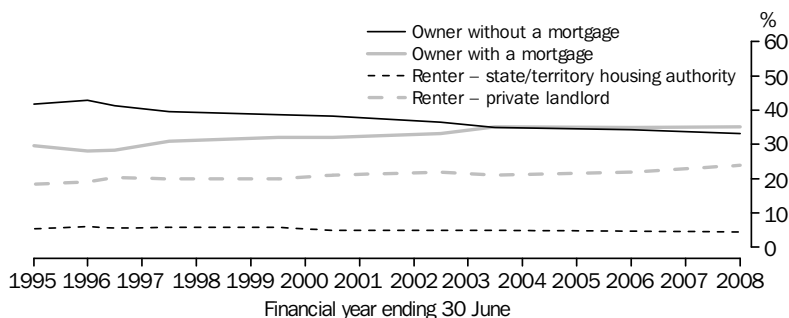
(d) Includes 'owner/purchaser undefined' which account for 0.4% of the total in 1976 and 1.9% in 1981. In subsequent years only the specific categories of 'owner with a mortgage' and 'owner without a mortgage' were included on Census forms, which may have resulted in some decline in measured ownership rates.

(e) Due to budgetary restraints, the ABS was unable to complete the normal processing of the data and a 50% sample was processed. The impact of this on the measured proportion of owner occupied private dwellings is not clear.

(f) Includes dwellings 'Being purchased under a rent/buy scheme'. These accounted for 0.5% of occupied private dwellings in 1996, 0.7% in 2001 and 0.2% in 2006. In previous years this tenure category was not separately catered for on Census forms and it is not known how households with rent/buy tenure would have responded to the questions on tenure.

Source: ABS data available on request, Census of Population and Housing.

### 10.6 HOUSEHOLDS, By tenure and landlord type



Note: No data available for 1998-99, 2001-02, 2004-05 or 2006-07. Values have been interpolated for these years.

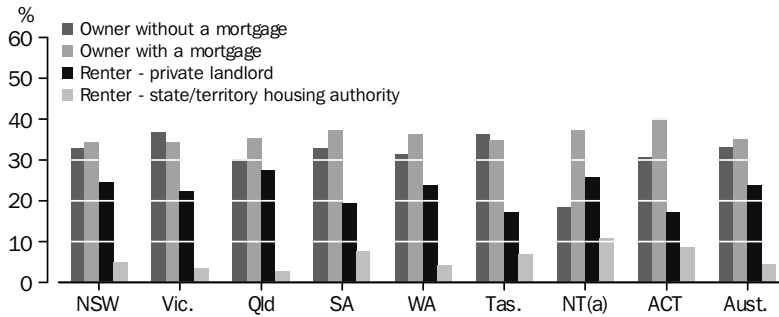
Source: *Housing Occupancy and Costs, Australia (4130.0)*.

Since 1994-95, the proportion of households renting from state/territory housing authorities has declined slightly while the proportion renting privately has increased from 18% to 24% (graph 10.6). While a greater proportion of all renting households are renting from private landlords, there is an increased number of private renters

receiving Commonwealth Rent Assistance (see *Housing costs* and *Housing assistance*).

The proportion of households without a mortgage has declined from 42% to 33%, while the proportion with a mortgage has risen from 30% to 35% in 2007-08. The decline in outright

### 10.7 OWNER AND RENTER HOUSEHOLDS, By state and territory—2007–08



(a) Excludes households in collection districts defined as very remote, accounting for about 23% of the population in the Northern Territory.

Source: *Housing Occupancy and Costs, Australia (4130.0)*.

### 10.8 OWNER AND RENTER HOUSEHOLDS, By dwelling type—2007–08



(a) Renting from a state or territory housing authority.

Source: ABS data available on request, *Survey of Income and Housing*.

home ownership may reflect increasing uptake of flexible low-cost financing options which allow households to extend their existing home mortgages for purposes other than the original home purchase (see *Home buyers*).

Tenure type is closely related to a household's life cycle stage (see *Housing and life cycle stages*) so differences in tenure patterns between geographic regions are partly a reflection of differences in the age and family structures of regional populations. For example, in 2007–08, those states with the oldest age structures (i.e. South Australia, Tasmania, New South Wales and Victoria) had the four highest rates of outright home ownership.

The Northern Territory had the lowest home ownership rate (56%) and the lowest proportion

of outright owners (19%) (graph 10.7). The Northern Territory also had the highest proportion of renters overall (42%), and the highest proportion of public renters (11%). This pattern of housing tenure reflects the Territory's young age structure (the youngest in Australia), highly mobile work force, and relatively large Indigenous population.

Australia's preference for a free-standing house on its own block of land is most evident among home owners. Of the 5.5 million households that owned their home in 2007–08, 88% lived in separate houses (graph 10.8). Over a half (56%) of all renter households lived in separate houses; 30% lived in flats, units or apartments; and 14% lived in semi-detached dwellings.

## Housing costs

For most Australians, whether buying or renting their home, the provision of adequate housing for themselves and their families involves substantial ongoing expenditure throughout much of their lives. Housing costs are often the largest regular expenses to be met from a household's current income.

The housing costs measure compiled from the Survey of Income and Housing is defined as the sum of;

- rent payments,
- rates payments (general and water), and
- mortgage or unsecured loan payments, if the initial purpose is primarily to buy, add to or alter the dwelling.

In 2007–08, owners without a mortgage had the lowest housing costs, averaging \$33 per week or 2% of gross household income. In contrast, owners with a mortgage had the highest housing costs, averaging \$384 per week or 18% of their gross household income.

Among renters, housing costs averaged \$105 per week for households renting from a state/territory housing authority and more than double that (\$267) for households renting from a private landlord. The effect of Commonwealth Rent Assistance (CRA) should be taken into

consideration when comparing the housing costs of private renters with those of other households.

Eligible social security recipients may receive a non-taxable income supplement in the form of CRA if the private rent they pay is above a threshold level. It is estimated that CRA effectively lowers the total housing costs by 10% for all private renters, and by 25% for those private renters who receive CRA. For more information see *Housing assistance* and *Housing Occupancy and Costs, Australia* (4130.0).

For the majority of owner and renter households, housing costs represented less than 25% of gross household income, but for some it was more than 50%. In 2007–08, 8% of private renters and owners with a mortgage spent more than half of their gross income on housing (table 10.9).

Between 1994–95 and 2007–08 owners with a mortgage experienced a \$111 increase in average weekly housing costs, after adjustment for inflation (graph 10.10). As a proportion of gross household income, housing costs of owners with a mortgage have ranged between 19% and 17% over this time (graph 10.11).

For other tenure types, changes in weekly housing costs were smaller with an overall increase of \$68 for private renters and \$17 for public renters between 1994–95 and 2007–08. For private renters, this represented a decline in the proportion of income spent on housing costs,

### 10.9 ALL HOUSEHOLDS, Housing costs by tenure and landlord type—2007–08

	Average weekly housing costs	Average proportion of gross household income (a)	PROPORTION OF HOUSEHOLDS WHOSE HOUSING COSTS REPRESENTED (a)		Number of households '000
			25% or less of gross household income	More than 50% of gross household income	
			%	%	
Owner without a mortgage	33	2	98.1	1.1	2 679.2
Owner with a mortgage	384	18	68.4	7.8	2 835.2
Renter - state/territory housing authority	105	19	69.9	*4.3	365.1
Renter - private landlord	267	18	65.0	7.6	1 929.5
Total renters(b)	237	17	66.2	6.9	2 399.9
All households(c)	216	13	78.2	5.2	8 077.3

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Excludes households with nil or negative total income.

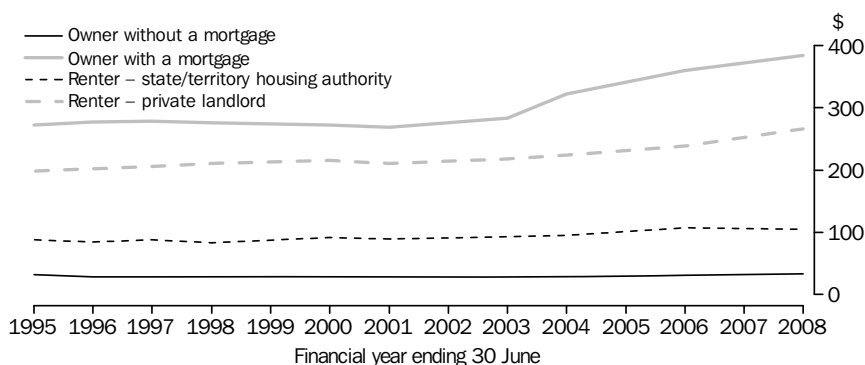
(b) Includes other landlord types.

(c) Includes other tenure type.

Source: Housing Occupancy and Costs, Australia, (4130.0).



### 10.10 AVERAGE REAL WEEKLY HOUSING COSTS(a), By tenure and landlord type

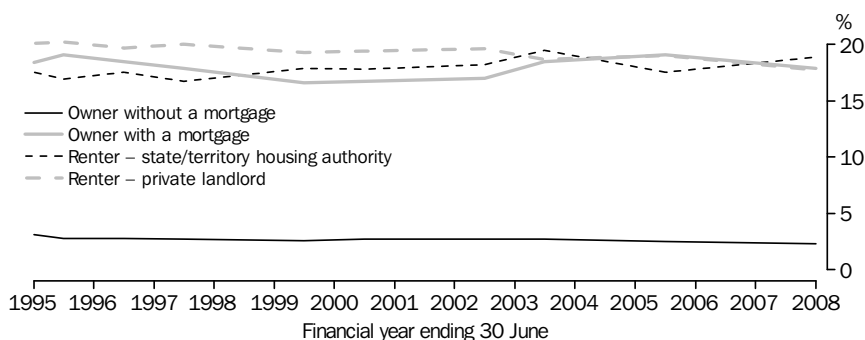


(a) Adjusted for changes in the Consumer Price Index to 2007-08 dollars.

Note: No data are available for 1998-99, 2001-02, 2004-05, or 2006-07. Values have been interpolated for these years.

Source: *Housing Occupancy and Costs, Australia (4130.0)*.

### 10.11 HOUSING COSTS AS A PROPORTION OF INCOME, By tenure and landlord type (a)



(a) Excludes households with nil and negative income

Note: No data are available for 1998-99, 2001-02, 2004-05 or 2006-07. Values have been interpolated for these years.

Source: *Housing Occupancy and Costs, Australia (4130.0)*.

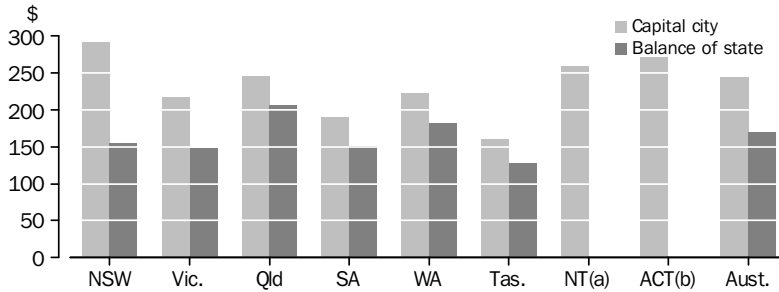
from 20% to 18% – but for public renters it represented an increase from 17% in 1994-95 to 19% in 2007-08 (graph 10.11). As noted above, the effect of CRA receipts should be taken into consideration when making comparisons of housing costs of private renters with those of other tenure or landlord types.

In 2007-08, households in Sydney and Canberra had the highest average weekly housing costs – \$292 and \$270 respectively (graph 10.12). In each of these cities, housing costs averaged more than \$455 per week for owners with a mortgage; \$325

per week for private renters; and \$110 per week for public renters. At \$160 per week, average housing costs in Hobart were just 55% of the Sydney average, and the lowest of all the capital cities.

In all states, average housing costs were higher in the capital city than in the rest of the state. The greatest difference was in New South Wales, with Sydney housing costs 88% higher than in the rest of the state. In contrast, Brisbane housing costs were 19% higher than in the rest of Queensland, which had the highest non-capital city housing

**10.12 AVERAGE WEEKLY HOUSING COSTS,  
By state and territory—2007–08**



(a) Excludes households in collection districts defined as very remote, accounting for about 23% of the population in the Northern Territory. (b) Balance of ACT estimates are not available.

Source: *Housing Occupancy and Costs (4130.0)*.

**10.13 CAPITAL CITY HOUSEHOLDS, Housing costs by tenure and landlord type—2007–08**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra(a)	Eight Capital Cities	Balance of Australia
<b>AVERAGE WEEKLY HOUSING COSTS (\$)</b>										
Owner without a mortgage	37	31	34	30	28	31	31	41	33	33
Owner with a mortgage	501	380	421	336	398	321	379	458	424	310
State/territory housing authority	111	109	92	109	100	88	126	121	107	100
Private landlord	327	279	291	225	256	204	305	337	291	218
Total renters(b)	146	217	183	124	107	117	156	175	165	195
<b>Total(c)</b>	<b>292</b>	<b>217</b>	<b>246</b>	<b>191</b>	<b>222</b>	<b>160</b>	<b>259</b>	<b>270</b>	<b>244</b>	<b>170</b>
<b>AVERAGE HOUSING COSTS AS A PROPORTION OF GROSS HOUSEHOLD INCOME (%)</b>										
Owner without a mortgage	2	2	2	2	2	2	1	2	2	3
Owner with a mortgage	19	18	17	17	18	18	15	18	18	17
State/territory housing authority	22	19	17	18	17	18	26	22	19	18
Private landlord	19	17	19	18	15	16	18	17	18	18
Total renters(b)	16	21	19	12	12	29	8	9	18	17
<b>Total(c)</b>	<b>19</b>	<b>17</b>	<b>19</b>	<b>18</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>16</b>	<b>13</b>	<b>13</b>

(a) All ACT owner and renter households.

(b) Includes other landlord types.

(c) Includes other tenure types.

Source: *Housing Occupancy and Costs, Australia, (4130.0)*.

costs in Australia. This is influenced by Queensland's high level of urban settlements outside of Brisbane.

Differences in average housing costs between regions reflect differences in property values (see *Home buyers*), rental prices and tenure patterns

(see *Home owners and renters*). In 2007–08, the median value of dwellings in Sydney (\$550,000) was more than 70% higher than that of Hobart (\$310,000), as was the mean amount of mortgage outstanding (\$243,000 compared with \$136,000). Consequently, average weekly housing costs for home owners were higher in Sydney than in

Hobart, particularly for owners with a mortgage (\$501 compared with \$321) (table 10.13). Also, private rents in Sydney were 60% higher than in Hobart. The proportion of Sydney households renting privately was also higher (28% compared with 16%) further contributing to the overall difference in average housing costs between Sydney and Hobart.

Household income also varies between regions, and when housing costs are expressed as a proportion of income, regional differences are moderated to some extent. For example, housing costs for all capital cities combined were 44% higher than in the rest of Australia (\$244 compared with \$170) but the proportion of income spent on housing costs was no higher (both 13%).

## Home buyers

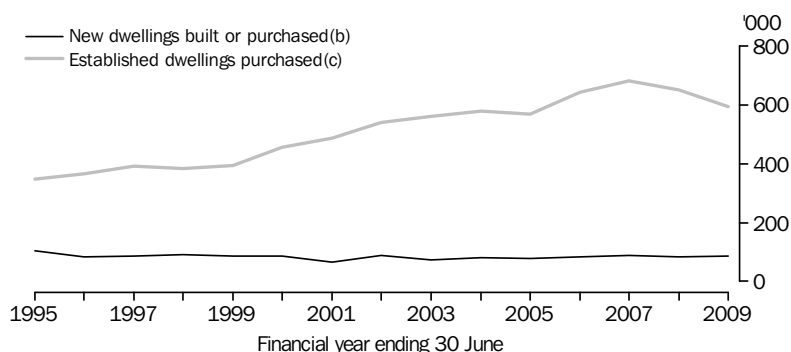
For most Australians, buying a home involves raising a deposit then borrowing a substantial amount of money from a bank or other lending institution which then holds a mortgage on the property. The amount borrowed is influenced by a number of factors including the price of the property, the amount of deposit, the policy of lenders regarding borrowing limits, and the ability of the borrower to repay the loan (which is in turn influenced by household income and housing loan interest rates).

During the period from 1994–95 to 2008–09 the number of dwellings financed grew considerably. In 2008–09, banks and other lending institutions financed 680,000 dwellings for owner occupation, 55,000 less than in the previous year, but still 50% higher than in 1994–95. While the number of established dwellings financed has grown from 348,000 in 1994–95 to 594,000 in 2008–09, the number of new dwellings financed for construction or purchase has declined from 103,000 to 85,000 over the same period (graph 10.14). In 2008–09, new dwellings represented 12% of all dwellings financed in Australia. Western Australia had the highest proportion of new dwellings financed (16%) and New South Wales had the lowest (9%).

Between 2002–03 and 2008–09 project home prices increased by an average of 32%, while established house prices increased by an average of 45%. Movements in established house prices were more volatile. They increased from 2002–03 to 2003–04, levelled off until 2005–06, again increased until 2007–08, in line with the rise in established home purchases, but declined in 2008–09 (graph 10.15).

Average loan sizes increased along broadly similar lines to house prices between 1994–95 and 2008–09. For most of the period, the average loan size of first home buyers was slightly less than changeover buyers (graph 10.16). However, in 2008–09, first home buyers' average borrowings exceeded that of changeover buyers, with first home buyers borrowing an average of \$269,000,

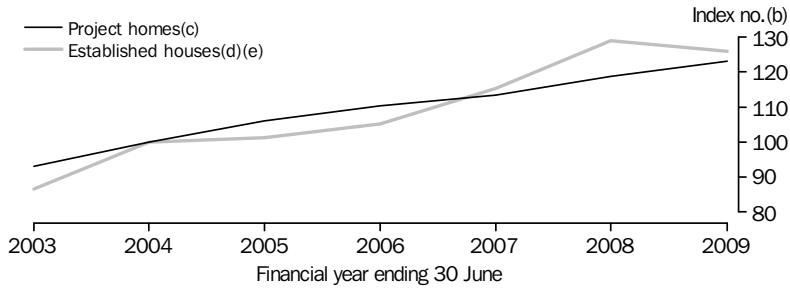
**10.14 DWELLINGS FINANCED(a)**



(a) Data includes owner occupied housing only. (b) Dwellings that have been completed within 12 months of the lodgement of a loan application, and the borrower will be the first occupant. (c) Dwellings that have been completed for 12 months or more prior to the lodgement of a loan application, or that have been previously occupied.

Source: *Housing Finance, Australia* (5609.0).

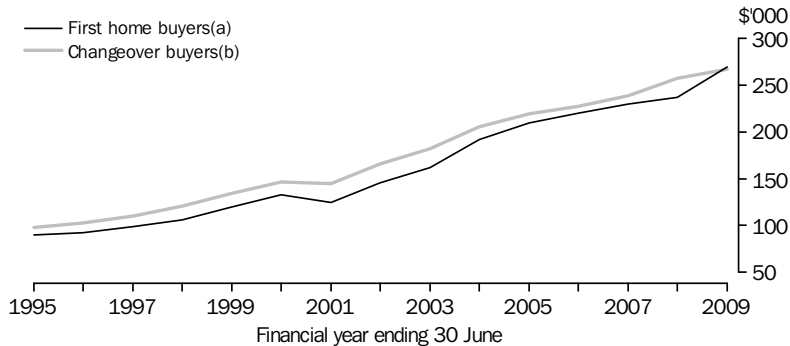
### 10.15 HOUSE PRICE INDEXES(a)



(a) Weighted average of the eight state and territory capital cities. (b) Reference base year 2003–04 = 100. (c) Price of new house construction only (excludes land). (d) Price of house and land (includes new house/land packages). (e) Data for this index only available from 2002-03 due to changes in methodology. Data for previous years can be found in House Price Indexes: Eight Capital Cities (6416.0).

Source: House Price Indexes: Eight Capital Cities (6416.0).

### 10.16 AVERAGE LOAN SIZE



(a) Persons entering the home ownership market for the first time. (b) Excludes refinancing.

Note: Excludes alterations and additions.

Source: Housing Finance, Australia (5609.0).

\$3,000 more than the average loan size of changeover buyers.

Differences in average loan sizes between states and territories tended to reflect differences in median house prices (table 10.17). Average loan sizes in 2008–09 were highest in New South Wales (\$275,000) and Western Australia (\$266,000), and lowest in Tasmania (\$182,000).

Between 1994–95 and 2007–08, the average real disposable income of households who were lone persons under 35 years increased by 47%. That of couple-only households with a reference person under 35 years increased by 52%, and that of couples with dependent children increased by

64% (graph 10.18). In the same period, the average loan size, after adjustment for inflation, increased by 56%.

About 1.0 million Australian households bought a home in the three years prior to the 2007–08 Survey of Income and Housing conducted during the twelve months ended June 2008. Thirty-two percent of these were first home buyers, most of whom were young households with a reference person aged under 35 years (64%) (table 10.19). Less than 10% of first home buyer households had a reference person aged 45 years and over. In contrast, more than half (53%) of changeover buyer households had a reference person aged 45 years and over.

## 10.17 HOUSING FINANCE FOR OWNER OCCUPATION, HOUSE PRICES AND PROPERTY VALUES

		NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Dwellings financed – 2008–09										
New dwelling built or purchased(a)	'000	18.0	24.6	18.3	6.9	13.3	1.6	0.5	1.4	84.7
Established dwelling purchased(b)	'000	188.7	134.3	123.0	51.4	685.9	12.5	4.9	10.4	593.8
All dwellings financed	'000	206.7	158.9	141.3	58.3	818.8	14.1	5.5	11.9	678.5
Average loan size – 2008–09										
First home buyers(c)	\$ '000	284	252	279	236	279	191	279	291	269
Non-first home buyers	\$ '000	272	246	258	204	261	180	258	248	253
All dwellings financed	\$ '000	275	248	263	210	266	182	263	256	257
Change in capital city Project Home Price Index from 2002–03 to 2008–09(d)										
	%	22	17	45	28	68	41	61	29	32
Change in capital city Established House Price Index from 2002–03 to 2008–09(e)										
	%	10	54	85	77	118	105	117	49	46
Median price of capital city established house transfers – March Qtr 2009(f)										
	\$ '000	447	375	400	353	430	300	455	461	na
Median estimated value of all owner occupied dwellings 2007–08(g)										
Capital city	\$ '000	550	420	450	350	520	310	400	450	450
Balance of state	\$ '000	340	260	400	285	400	250	na	na	320
Total state	\$ '000	435	360	400	330	500	270	380	450	400
Average amount of mortgage outstanding – 2007–08(h)										
Capital city	\$ '000	243	160	191	150	177	136	174	170	192
Balance of State	\$ '000	142	123	157	107	143	89	na	na	139
Total	\$ '000	207	149	173	140	169	107	169	170	173

na not available

- (a) A new dwelling is one that has been completed within twelve months of the lodgement of a loan application, and the borrower will be the first occupant.
- (b) An established dwelling is one that has been completed for twelve months or more prior to the lodgement of a loan application, or that has been previously occupied.
- (c) Persons entering the home ownership market for the first time.
- (d) Measures change in the cost of building a new house on buyer's own land.

(e) Measures change in prices paid for house and land, including new house/land packages.

(f) Prices paid for established houses (including land) purchased in the reference period.

(g) Householder's own estimate of the market value of their dwelling at the time of the survey.

(h) Only includes owners with a mortgage.

Source: Housing Finance, Australia (5609.0); House Price Indexes: Eight Capital Cities (6416.0); Housing Occupancy and Costs, Australia (4130.0).

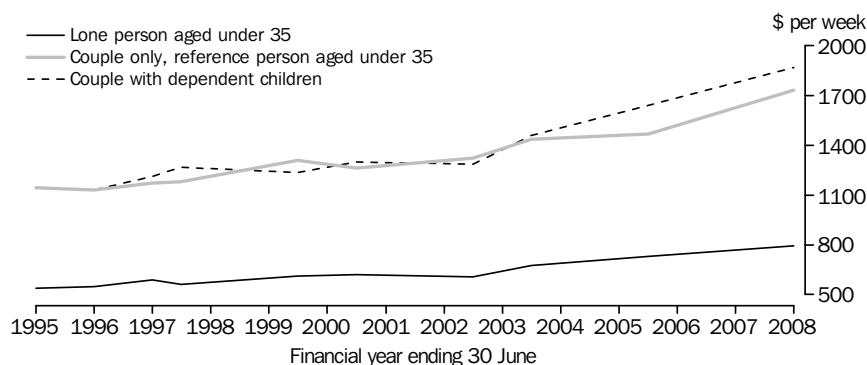
Changeover buyers are able to use the often substantial equity in their previous dwelling as a deposit on a more expensive 'upgrade'. Many will be able to discharge their mortgage quickly and some may not need to borrow at all. In 2007–08, the estimated median value of dwellings occupied by changeover buyers was \$420,000 compared with \$350,000 for first home buyers.

While changeover buyers occupied more expensive homes than first home buyers, they

had smaller mortgages (\$231,000 compared with \$251,000) and were more likely to own their home outright.

Consequently, average weekly housing costs of first home buyers were higher than for changeover buyers – \$471 compared with \$365. First home buyers also spent a larger proportion of household income on housing than changeover buyers – 24% compared with 16%.

### 10.18 AVERAGE REAL DISPOSABLE HOUSEHOLD INCOME(a)



(a) Adjusted for changes in the Consumer Price Index to 2007–08 dollars.

Note: No data are available for 1998–99, 2001–02, 2004–05 or 2006–07. Values have been interpolated for these years.

Source: ABS data available on request, Survey of Income and Housing.

### 10.19 RECENT HOME BUYERS(a), Selected household characteristics—2007–08

		RECENT HOME BUYERS			
		First home buyer(b)	Changeover buyer(c)	All recent home buyers	All owner households
Proportion of households with reference person aged					
Under 35 years	%	63.9	16.6	31.8	11.4
35–44 years	%	26.2	30.4	29.0	19.6
45–54 years	%	*6.0	22.0	16.8	22.9
55–64 years	%	*1.6	17.6	12.4	20.2
65 years and over	%	**2.2	13.5	9.8	25.8
Proportion of households in selected family/household groups					
Lone person	%	24.0	20.5	21.6	20.7
Couple only	%	31.1	29.9	30.3	31.1
Couple family with dependent children	%	31.7	33.3	32.8	29.8
One parent with dependent children	%	*4.1	4.7	4.5	3.4
Proportion of households that built/purchased a new dwelling(d)	%	8.9	16.8	14.3	na
Estimated mean value of dwelling(e)	\$'000	357	521	468	493
Estimated median value of dwelling(e)	\$'000	350	420	390	400
Proportion of households with a mortgage	%	92	72	78	51
Mean amount of mortgage outstanding(f)	\$'000	251	231	239	173
Average weekly housing costs	\$	471	365	400	213
Housing costs as a proportion of income	%	24	16	18	12
Estimated number of households(g)	'000	317.8	668.2	986.1	5 514.4

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

na not available

(a) Households that built or purchased their dwelling in the three years before the survey.

(b) Recent home buyer households in which neither the reference person nor their partner had previously owned a dwelling.

(c) Recent home buyer households in which either the reference person or their partner had previously owned a dwelling.

(d) A dwelling is new if it was built under contract for the current owner or purchased from a builder/developer and the current owners are the first to live in it.

(e) Householder's own estimate of the market value of their dwelling at the time of the survey.

(f) Only includes owners with a mortgage.

(g) Includes all family and household groups.

Source: Source: ABS data available on request, Survey of Income and Housing.

## Housing and life cycle stages

As people progress through different life cycle stages and their family structures and financial situations change, so do their housing needs and preferences. For young people leaving their parental home, a typical life experience with housing might begin with renting a small flat or unit for themselves or sharing a group house, then moving on to renting an apartment or house with their partner while saving for a deposit on their first home. Many couples will buy their first home and pay off a considerable part of their mortgage before having their first child.

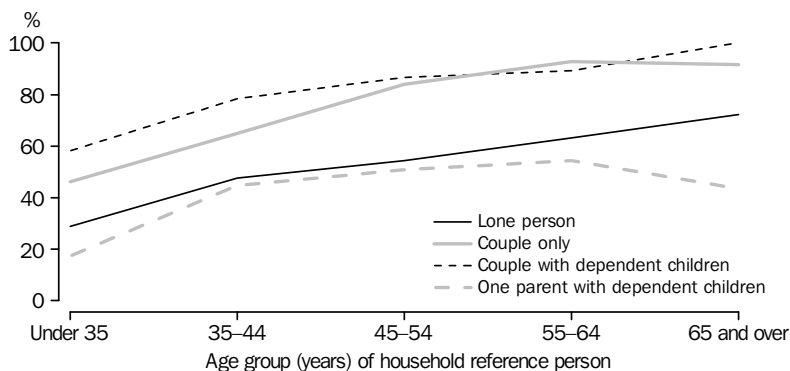
Then, as the number and age of children increase, many will upgrade to a larger house. After the children have left home, most home owners will probably remain in the same home at least until retirement, by which time most will

own their home outright. After retirement, some will change location, and in doing so a few will choose a smaller home, possibly a unit in a retirement village. Later, some who are too old or frail to live in their own home will move into cared accommodation (see *Aged care* in the *Income and welfare* chapter).

While most Australians aspire to own their home outright, at least by the time they retire, many on low incomes cannot afford to buy a home and some cannot afford to rent adequate housing. There are a range of government programs aimed at assisting low income households to buy or rent suitable and affordable housing (see *Housing assistance*).

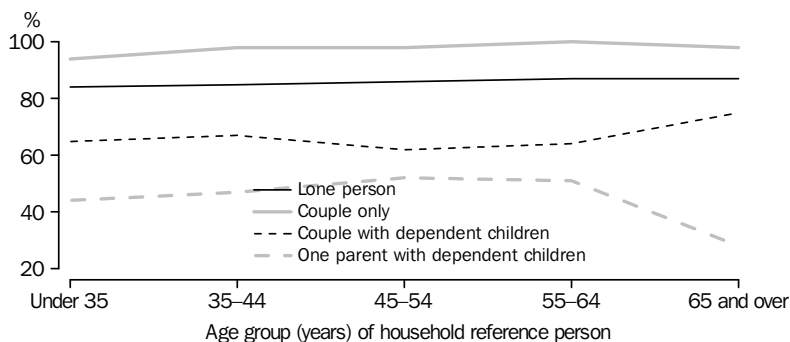
In 2007–08, almost half of young (reference person aged under 35 years) couple only households, and over half of young couples with

**10.20 HOME OWNERSHIP RATES, By household composition — 2007–08**



Source: ABS data available on request, Survey of Income and Housing.

**10.21 HOUSEHOLDS WITH ONE OR MORE SPARE BEDROOMS(a) — 2007–08**



(a) As measured against the Canadian National Occupancy Standard.

Source: ABS data available on request, Survey of Income and Housing.

**10.22 SELECTED HOUSEHOLD AND DWELLING CHARACTERISTICS(a)—2007-08**

Household composition	Estimated number of households '000	Average	Average	PROPORTION OF HOUSEHOLDS WITH CHARACTERISTIC					
		number of persons in household no.	number of bedrooms in dwelling no.	One or more spare bedrooms(b) %	Living in separate house %	Living in flat/unit/apartment %	Home owner %	Renter %	
<b>REFERENCE PERSON AGED UNDER 35 YEARS</b>									
Lone person	351.2	1.0	2.3	84.1	42.7	40.9	28.7	64.3	
Couple only	390.9	2.0	2.6	93.9	64.5	24.2	46.2	49.7	
Couple family with dependent children	483.7	3.9	3.2	65.5	85.3	8.5	58.2	39.4	
One parent family with dependent children	153.3	3.0	3.0	44.0	77.3	12.3	17.3	79.7	
All households(c)	1 692.8	2.6	2.8	68.7	64.0	23.8	37.2	58.8	
<b>REFERENCE PERSON AGED 35-44 YEARS</b>									
Lone person	256.2	1.0	2.4	85.3	52.6	32.4	47.6	45.3	
Couple only	199.3	2.0	3.0	98.1	77.7	13.5	64.8	32.1	
Couple family with dependent children	850.1	4.3	3.5	66.9	89.5	4.8	78.4	18.8	
One parent family with dependent children	199.8	3.1	3.2	47.3	82.5	11.5	44.6	49.7	
All households(c)	1 658.3	3.3	3.2	69.3	80.0	12.0	65.2	30.6	
<b>REFERENCE PERSON AGED 45-54 YEARS</b>									
Lone person	311.2	1.0	2.5	85.5	62.0	25.0	54.4	39.3	
Couple only	282.3	2.0	3.2	98.4	84.8	6.8	84.0	13.0	
Couple family with dependent children	649.4	4.3	3.7	62.1	91.7	4.1	86.7	12.2	
One parent family with dependent children	125.3	3.0	3.2	52.4	81.6	*7.9	50.9	47.3	
All households(c)	1 663.1	3.0	3.3	73.3	83.6	9.0	76.0	21.5	
<b>REFERENCE PERSON AGED 55-64 YEARS</b>									
Lone person	348.1	1.0	2.6	86.8	67.3	20.1	63.0	32.7	
Couple only	552.0	2.0	3.4	99.9	93.3	3.3	92.7	6.2	
Couple family with dependent children	131.7	3.9	3.7	63.9	89.2	*6.1	89.2	*10.8	
All households(c)	1 351.8	2.2	3.2	87.9	85.7	7.9	82.5	15.7	
<b>REFERENCE PERSON AGED 65 AND OVER</b>									
Lone person	737.4	1.0	2.5	86.6	65.9	18.6	72.1	21.4	
Couple only	717.2	2.0	3.1	98.3	89.1	4.4	91.6	6.3	
All households(c)	1 711.2	1.7	2.9	88.9	78.9	10.7	83.3	13.0	
<b>ALL AGE GROUPS</b>									
Lone person	2 004.1	1.0	2.5	85.9	59.8	25.5	57.0	36.7	
Couple only	2 141.6	2.0	3.1	97.9	84.1	8.9	80.1	17.5	
Couple family with dependent children	2 129.0	4.2	3.5	65.0	89.2	5.5	77.2	20.9	
One parent family with dependent children	497.7	3.0	3.1	47.4	81.0	10.4	38.1	58.1	
All households(c)	8 077.3	2.6	3.1	77.3	78.1	12.9	68.3	28.4	

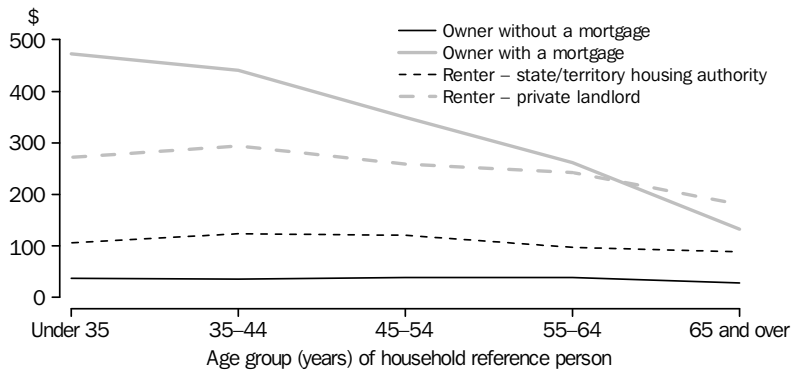
\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) By age group of household reference person.  
(b) As measured against the Canadian National Occupancy Standard.

(c) Includes all other family and household types.  
Source: ABS data available on request, Survey of Income and Housing.



**10.23 AVERAGE WEEKLY HOUSING COSTS, By tenure — 2007–08**



Source: ABS data available on request, *Survey of Income and Housing*.

dependent children, owned their home (46% and 58% respectively) (graph 10.20 and table 10.22). The home ownership rate was considerably lower for young lone-person households (29%).

Home ownership rates increased with age of reference person up to age 55–64 years for all family and household groups. Beyond this age group, the home ownership rate for couple with dependent children households continued to increase, while the rate for lone parent with dependent children and couple only households declined. At age 65 years and over, home ownership rates for lone person and couple only households converged to some extent, reflecting the transition of couple only households to lone person households following the death of one partner.

One parent families with dependent children had the lowest home ownership rate (38%) and the highest proportion of renters, particularly public renters (table 10.22). In 2007–08, 16% of all one parent families with dependent children were renting from a state/territory housing authority and 42% were renting privately. Lone person households also had relatively high proportions of renters, with 9% renting from a state/territory housing authority and 28% renting privately (table 10.24).

People living alone are more likely to live in high density housing than any other group, particularly when young. In 2007–08, the proportion of lone persons living in a flat, unit or apartment ranged from 41% of those aged under 35 years to 19% of those aged 65 years and over.

Even so, lone persons were more likely to have one or more spare bedrooms than families with children. In 2007–08, 86% of lone-person households and 98% of couple-only households had one or more spare bedrooms (graph 10.21).

There are long-term benefits in home ownership. Initially, the cost of home purchase is often far greater than renting (due to the costs of deposits and fees, as well as ongoing mortgage repayments). However, the much lower costs associated with owning a home outright, and the investment that a home represents, can be major contributors to economic wellbeing, particularly for older people, as many retire on considerably reduced incomes.

In 2007–08, the average weekly housing costs of young households with a mortgage was \$472 – 74% more than the average weekly rent of young private renters (graph 10.23). The difference in housing costs between owners with a mortgage and private renters was progressively smaller in older age groups, mainly because of progressively lower mortgage payments. For households with a reference person aged 65 years and over, private rents were higher, on average, than the housing costs of home owners with a mortgage.

The difference in housing costs between younger and older owners with a mortgage is largely a reflection of the difference in house prices, and hence the amount borrowed, at the time of purchase. On average, recent home buyers paid higher prices than those who bought their homes ten or more years ago. In 2007–08, more than half (52%) of young households with a mortgage were

**10.24 HOUSING COSTS, MORTGAGE, AND TENURE AND LANDLORD TYPE(a)—2007–08**

Household composition	Average housing costs as a		Average amount of mortgage outstanding(c)	Proportion of owner with a mortgage recent home buyers(d)	PROPORTION OF HOUSEHOLDS WITH CHARACTERISTIC			
	Average weekly housing costs	proportion of gross household income(b)			Owner without a mortgage	Owner with a mortgage	Renter -	
							state/territory housing authority	Renter - private landlord
	\$	%	\$'000	%	%	%	%	%
<b>REFERENCE PERSON AGED UNDER 35 YEARS</b>								
Lone person	258	26	189	62.7	3.5	25.2	2.5	61.9
Couple only	386	18	268	61.1	1.6	44.6	0.1	49.6
Couple family with dependent children	340	20	200	40.5	5.3	52.9	1.3	38.0
One parent family with dependent children	211	26	165	*29.1	1.2	16.1	20.0	59.8
All households(e)	320	19	221	51.7	3.1	34.1	3.0	55.7
<b>REFERENCE PERSON AGED 35–44 YEARS</b>								
Lone person	236	19	170	34.8	10.9	36.6	4.8	40.5
Couple only	408	15	219	42.4	7.5	57.3	2.0	30.1
Couple family with dependent children	370	16	203	24.8	12.5	65.9	1.0	17.8
One parent family with dependent children	229	22	143	31.7	7.7	37.0	13.4	36.3
All households(e)	330	16	197	29.2	10.8	54.4	3.6	27.0
<b>REFERENCE PERSON AGED 45–54 YEARS</b>								
Lone person	178	18	115	20.5	19.0	35.4	10.6	28.7
Couple only	242	12	166	22.8	28.8	55.3	1.5	11.4
Couple family with dependent children	277	10	170	12.6	26.0	60.7	2.0	10.2
One parent family with dependent children	235	19	164	18.9	13.9	37.0	13.1	34.2
All households(e)	241	12	155	15.9	24.2	51.8	4.6	16.9
<b>REFERENCE PERSON AGED 55–64 YEARS</b>								
Lone person	116	12	97	*19.8	41.3	21.7	13.1	19.6
Couple only	108	6	105	16.6	63.0	29.7	0.5	5.6
Couple family with dependent children	174	7	138	*10.0	48.7	40.4	1.3	9.6
All households(e)	129	8	113	15.6	52.8	29.6	5.1	10.6
<b>REFERENCE PERSON AGED 65 AND OVER</b>								
Lone person	49	11	54	*21.3	69.0	3.1	11.1	10.4
Couple only	41	4	68	**6.4	85.6	6.0	2.5	3.8
All households(e)	48	6	70	*9.6	77.9	5.4	6.3	6.7
<b>ALL AGE GROUPS</b>								
Lone person	141	17	138	33.4	37.5	19.5	9.0	27.7
Couple only	182	11	181	33.8	49.7	30.4	1.4	16.1
Couple family with dependent children	321	14	189	23.5	17.7	59.5	1.4	19.5
One parent family with dependent children	222	22	154	26.5	8.1	29.9	15.9	42.2
All households(e)	216	13	173	27.2	33.2	35.1	4.5	23.9

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) By age group of household reference person.

(b) Excludes households with nil and negative income.

(c) Only Includes owners with a mortgage

(d) Owners who built or purchased their dwelling in the three years prior to the survey.

(e) Includes all other family and household types.

Source: ABS data available on request, Survey of Income and Housing.

recent home buyers compared with 10% of the oldest home owners (reference person aged 65 years and over) with a mortgage (table 10.24). The average mortgage outstanding for young home owners was \$221,000 compared with \$70,000 for the oldest.

For other tenure types, there was much less variation in housing costs across age groups (graph 10.23). In 2007–08, average weekly rents rose from \$272 for young households renting privately to \$293 for those with a reference person aged 35–44 years, and were progressively lower for older private renters. This pattern largely reflects the need for larger households to rent larger, and often more expensive, dwellings. In 2007–08, couple families with dependent children represented 20% of young private renter households; 34% of those with a reference person aged 35–44 years; and 24% of those with a reference person aged 45–54 years.

Average weekly rents of public renters were less than half those of private renters, starting at \$106 for younger households and declining to \$88 for the oldest. Owners without a mortgage had by far the lowest and least variable housing costs, averaging \$33 per week overall.

Much of the variation in housing costs between households at different life cycle stages is related to differences in tenure patterns. For example, in 2007–08, households with a reference person aged 35–44 years had the highest average weekly housing costs (\$330). They also had the highest proportion of owners with a mortgage (54%), the second highest proportion of recent home buyers (29% of all home owners with a mortgage), the second highest average amount of mortgage outstanding (\$197,000) and the second highest proportion of private renters (27%) (table 10.24).

Housing costs were on average lower for younger (reference person aged under 35 years) households (\$320 per week). Even though this group had the highest proportion of recent home buyers (52%), only 34% of younger households were owners with a mortgage. Those who were owners with a mortgage had the highest average amount of mortgage outstanding (\$221,000). This group also had the highest proportion of private renters (56%) and the lowest proportion of owners without a mortgage (3%).

At the other end of the spectrum, the oldest households (with a reference person aged 65

years and over) had the highest proportion of home owners without a mortgage (78%), the lowest proportion of private renters (7%), the highest proportion of public renters (6%), and, for those in this group that had a mortgage, it was the lowest of all age groups (\$70,000). Together these factors resulted in this group having by far the lowest average housing costs (\$48 per week).

Housing costs decline with age for all family and household types, as does the proportion of household income spent on housing, but to a lesser extent. For example, in 2007–08, the oldest lone-person households paid an average of \$49 per week (11% of their gross household income) for housing, while the youngest lone-person households paid \$258 (26% of their gross household income) for housing.

## Housing assistance

*This section was contributed by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (October 2009).*

The Australian Government invested significantly in a broad range of housing and homelessness initiatives in 2008–09, including through providing assistance to first home buyers; building more affordable rental properties; and taking steps to improve the efficiency of the housing market. The Government has also taken action to improve Indigenous housing, particularly in remote communities.

## Payments to individuals and families

### Commonwealth Rent Assistance

Rent Assistance is a non-taxable income supplement payable to eligible Australian residents who rent accommodation in the private rental market. In order to receive Rent Assistance, a customer must first qualify for a social security income support payment, or more than the base rate of Family Tax Benefit A or service pension, and must pay a minimum amount of rent, called the rent threshold. Rent Assistance is then paid at the rate of 75 cents for each dollar above the rent threshold up to a maximum amount. Rent Assistance rates are based on a customer's family situation and the amount of rent they pay.

## 10.25 RECIPIENTS OF RENT ASSISTANCE, Average rent assistance and rent paid—5 June 2009

	Individuals and families	Average rent assistance (a)	Average rent paid (b)
	no.	\$ per fortnight	\$ per fortnight
<b>All recipients</b>	<b>1 038 137</b>	<b>95</b>	<b>373</b>
Primary payment type(c)			
Parenting Payment (single)	162 839	110	438
Disability Support Pension	203 432	97	316
Age Pension	187 200	88	305
Newstart Allowance	197 849	91	343
Family Tax Benefit only	129 885	93	563
Youth Allowance – student	63 710	79	281
Youth Allowance – other	14 326	71	249
Parenting Payment (partnered)	27 776	124	525
Carer pension	20 322	101	372
Other	30 798	89	332
Income unit type			
Single – no dependent children	545 778	87	284
Couple – no dependent children	91 244	90	397
Single – 1 or 2 dependent children	189 750	105	439
Single – 3 or more dependent children	38 434	123	494
Couple – 1 or 2 dependent children	117 664	100	539
Couple – 3 or more dependent children	52 350	116	568
Couple – temporarily separated	2 917	108	388

(a) Average Rent Assistance per fortnight is taken to be 14 times the daily entitlement to Rent Assistance for 5 June 2009.

(b) Average rent is the average rent taken into account in working out entitlements for 5 June 2009.

(c) One member of a couple is treated as the reference person for the income unit, based on the type of payment they receive. The general order of priority is Pensions, Allowances, Family Tax Benefit (FTB). An income unit will be reported as receiving Parenting Payment (Partnered) only if neither member of the couple receives another social security payment. They will only be reported as receiving FTB Part A if neither receives a social security payment.

Source: Department of Families, Housing, Community Services and Indigenous Affairs.

To maintain the real value of payments, Rent Assistance is adjusted each year in March and September in line with the changes to the Consumer Price Index. Both the rent threshold and the maximum amount are adjusted. This ensures that Rent Assistance continues to help those paying higher rents.

At 5 June 2009, 1,038,137 income units were recorded by Centrelink as entitled to Rent Assistance. An income unit is defined as a single person with or without dependent children, or a couple with or without dependent children. The average rent paid by Rent Assistance recipients was \$373 per fortnight while the average Rent Assistance received was \$95 per fortnight (table 10.25).

Rent Assistance recipients are most likely to be receiving the Age Pension (18%), Disability Support Pension (20%) or Newstart Allowance (19%). Nearly three quarters of those receiving Rent Assistance are single: 22% are sole parents, 14% are single people in share accommodation and 38% are single people living alone.

Nearly 40% of all Rent Assistance recipients are families with children. Sole parent families represent 22% of the total Rent Assistance population, while couple families represent 16%.

Outlays on Rent Assistance are included in the total expenditure on Pensions, Allowances and Family Tax Benefits, details of which are provided in the *Income and welfare* chapter.

### Housing partnerships

#### Commonwealth State Housing Agreement (CSHA)

The CSHA was an agreement made between the Australian Government and state and territory governments under the *Housing Assistance Act 1996* (Cwlth) to provide appropriate, affordable and secure housing assistance for those who most needed it, for the duration of their need.

The most recent CSHA operated from July 2003 to December 2008 and provided \$5.2 billion over the five and a half year period. Its objectives included improving access to mainstream

## 10.26 CSHA, Payments to states and territories—1 July 2008 – 31 December 2008

	NSW	Vic.	Qld	WA	SA	Tas.	NT	ACT	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Base funding	124 471	94 267	75 978	38 288	28 605	11 030	8 723	6 889	388 251
Community Housing Program	11 205	8 486	6 839	3 447	2 575	802	551	352	34 257
Aboriginal Rental Housing Program	9 519	1 947	13 518	8 494	4 467	348	na	10 424	48 717
Crisis Accommodation Program	6 944	5 259	4 238	2 136	1 596	497	342	218	21 230
<b>Total</b>	<b>152 139</b>	<b>109 959</b>	<b>100 573</b>	<b>52 365</b>	<b>37 243</b>	<b>12 677</b>	<b>9 616</b>	<b>17 883</b>	<b>492 455</b>

na not available

Source: Department of Families, Housing, Community Services and Indigenous Affairs.

## 10.27 NATIONAL AFFORDABLE HOUSING AGREEMENT, Payments to states and territories

2008-09	
	\$m
NSW	185.2
Vic.	129.5
Qld	114.3
WA	60.9
SA	46.2
Tas.	16.8
ACT	12.7
NT	20.4
<b>Aust.</b>	<b>586.1</b>

Source: Budget paper 3. Table 2.83 National Affordable Housing Special Purpose Payment. 2009-10 budget.

housing options for Indigenous people in urban and regional centres; supporting community development and the renewal of public housing estates; supporting wider government outcomes in health, education and labour market reform; and stimulating private sector investment in the supply of low cost housing.

The CSHA was replaced by the National Affordable Housing Agreement, which commenced on 1 January 2009.

### National Affordable Housing Agreement (NAHA)

The NAHA provides a framework for governments to work together to improve housing affordability, reduce homelessness and reduce Indigenous housing disadvantage. As part of the new Agreement, governments have committed to undertake reforms in the housing sector, including to:

- improve integration between the homelessness service system and mainstream services
- reduce concentrations of disadvantage that exist in some social housing estates
- improve access by Indigenous people to mainstream housing, including home ownership
- enhance the capacity and growth of the not-for-profit housing sector
- reform planning systems for greater efficiency in the supply of housing.

The NAHA is primarily supported by National Partnerships on Social Housing, Homelessness and Remote Indigenous Housing. The Social Housing Initiative also contributes to the objectives of the NAHA.

The Social Housing National Partnership Agreement provides \$400 million to the states and territories over two years in 2008-09 and 2009-10 as capital funding to increase the supply of social housing by at least 1600 dwellings.

## Affordable housing

### Public housing

As at 30 June 2008 the number of public housing dwellings was 337,866, with an occupancy rate of 98%, or 331,136 households. The majority of public housing dwellings were located in a major city (73%); only 2% were located in remote or very remote areas.

Of the households living in public housing, 88% received a rental rebate and of these 91% received a government pension or benefit as the main source of income. Over half received either an age pension (28%) or a disability support pension (30%).

Over half (55%) of those households in public housing paying rebated rents were single adults. Sole-parent households comprised a further 20%, while couples with dependent children made up another 5%. Public housing tenants aged 65 years and over comprised 29%; only 3% were aged under 25 years. The age profile was younger in Tasmania, the Australian Capital Territory and the Northern Territory than in other jurisdictions.

### Community housing

Community housing has a valuable role in effectively and efficiently delivering housing to a broad range of tenant groups. Community housing is operated by non-government organisations, such as church groups, charity and community organisations, and offers tenants subsidised housing with the opportunity to participate in its management, or to have an appointed housing manager.

As at 30 June 2008, community housing stock comprised 9% of the total national social housing stock, with 36,079 community housing dwellings, now referred to as 'tenancy (rental) units', across Australia.

There were 35,667 households occupying community housing at 30 June 2008. Of these households, over a quarter (28%) had a household member with a disability and 14% were from a non-English speaking background. Of the principal tenants in community housing, 8% were aged over 75 years and 7% were aged under 24 years.

The number of newly assisted community households in the twelve months to 30 June 2008 was 8,728. Of those new households assisted, 36% were previously homeless.

### Access to public and community housing

Priority access to public and community housing is given to individuals or groups who meet eligibility criteria such as having a 'special needs status' or 'greatest needs status'. These people are allocated public or community housing as a priority due to the following:

'Special needs status'

- having a household member with a disability; or

- where the principal tenant is aged 24 years or under; or
- where the principal tenant is aged 75 years or more; or
- where the household satisfies the Indigenous household definition.

'Greatest need status'

- they were homeless; or
- their life or safety was at risk in their accommodation (due to domestic violence, for example); or
- their health condition was aggravated by their housing; or
- their housing was inappropriate to their needs; or
- they had very high rental housing costs.

### Social Housing Initiative

The Australian Government is funding the Social Housing Initiative under the Nation Building Economic Stimulus Plan to support employment and the Australian economy.

\$5.64 billion of funding is being allocated to state and territory governments to build up to 19,200 additional social housing dwellings, with the assistance of the not-for-profit sector, and to repair over 60,000 existing social housing dwellings. Approximately 10,000 of these dwellings are either unsuitable for occupancy or would become unsuitable over the next year or so.

The Commonwealth is looking at new, innovative provision of social housing and incorporating universal design and energy efficiency measures in all dwellings constructed through the Initiative.

In 2008–09 the Commonwealth paid \$260 million to the state and territory governments for the Initiative. As at 30 June 2009, construction had begun on 788 new social housing dwellings, and six homes had been completed.

Funding for the Social Housing Initiative is being committed over the years 2008–09 to 2011–12. It is expected that all dwellings should be completed by June 2012.

## **National Rental Affordability Scheme (NRAS)**

The Australian Government is investing more than \$1 billion in NRAS over four years to stimulate the supply of up to 50,000 new affordable rental dwellings by 30 June 2012.

NRAS is a joint Commonwealth/State/Territory initiative that provides a financial incentive of \$8,000 (indexed annually) comprising two components:

- Commonwealth tax offset or payment of \$6,000
- State/Territory payment of \$2,000 either made as a direct payment or as in kind financial support.

The incentive is payable for each new affordable dwelling on the condition that it is rented at 20 percent below the market rate to eligible tenants on low to moderate incomes. The incentive is paid annually for a period of 10 years.

In 2008–09, a total of 4,495 incentives were accepted for new affordable rental dwellings.

## **Home Purchase Assistance (HPA)**

First home purchasers have been eligible for financial assistance under the First Home Owner Grant (FHOG) since July 2000. The FHOG is a \$7,000 lump-sum payment available to eligible first home buyers.

Since October 2008 additional grants of up to \$14,000 have been made available under the First Home Owners Boost (FHOB). The FHOB doubled the grant to \$14,000 for existing homes and trebled it to \$21,000 for new homes where contracts were signed between 14 October 2008 and 30 September 2009; or \$10,500 for established homes and \$14,000 for new homes for contracts signed between 1 October and 31 December 2009. Neither the FHOG nor the FHOB are means tested.

Over 153,000 first home buyers took up the FHOB between October 2008 and the end of August 2009.

HPA is provided by some states to assist low-to-moderate income households to purchase a home or to provide help with mortgage repayments. Some of the mechanisms used to assist low-to-moderate income earners include

loans, shared equity schemes, deposit assistance and mortgage relief.

## **Housing Affordability Fund**

The Australian Government committed \$512 million over five years from 2008–09 through the Housing Affordability Fund to increase the supply of housing and reduce the purchase price of new homes, particularly entry level or moderately priced homes. The Fund provides developers and local government a financial incentive to reform development and planning systems and reduce the impact of infrastructure charges on new homes.

## **Helping those most in need**

### **Supported Accommodation Assistance Program (SAAP)**

SAAP provides emergency and transitional supported accommodation and related services to people who are homeless or at risk of homelessness. The Australian Government ended SAAP on 31 December 2008 and subsumed funding for homelessness services under the National Affordable Housing Agreement (NAHA) from 1 January 2009.

In 2007–08 SAAP assisted 125,600 homeless persons and 76,900 accompanying children through 1,562 agencies across Australia. The number of clients supported by SAAP agencies on any given day ranged from 30,400 to 35,900.

The primary focus of SAAP agencies was to use a case management approach to support homeless people, including adults and children escaping domestic violence. Through this process, clients were offered a range of services including: supported accommodation; counselling; advocacy; links to housing, health, education and employment services; outreach support; brokerage; and meals.

### **Crisis accommodation**

The Crisis Accommodation Program (CAP) of the CSHA mainly funded the building, maintenance and renovation of crisis accommodation. In 2007–08 the total number of CAP dwellings nationally was 7,567.

## Housing assistance for Aboriginal and Torres Strait Islander peoples

In addition to the payments to individuals and housing assistance available to all Australians, there are a number of programs which are aimed at meeting the needs of Aboriginal and Torres Strait Islander (Indigenous) Australians.

The housing standards experienced by Aboriginal and Torres Strait Islander peoples tend to be lower than those experienced by other Australians. Housing standards tend to be lowest in remote communities due to higher building and maintenance costs as a result of access and distance-related issues. Maintenance requirements are usually higher where environmental conditions are harsh, or where accommodation is insufficient, leading to overcrowding.

Overcrowding is of particular concern because it is associated with poor health outcomes. The 2006 Census of Population and Housing found that Indigenous people were 4.8 times as likely as non-Indigenous people to live in overcrowded housing, i.e. dwellings requiring at least one additional bedroom. The proportion of Indigenous people living in overcrowded conditions rose with geographic remoteness, from 15% in major cities to 65% of those in very remote areas.

Between 2001 and 2006 the proportion of Indigenous people living in overcrowded housing decreased from 31% to 27%.

The 2006 Community Housing and Infrastructure Needs Survey, conducted by the ABS, collected information from 496 Indigenous Housing Organisations (IHOs) which managed a total of 21,854 permanent dwellings. The majority of these dwellings (57%) were in very remote areas, with a further 11% in remote areas and 32% in non-remote areas. Of the permanent dwellings managed by IHOs in 2006, 69% required minor or no repairs and 30% required major repairs or replacement, an increase from the 27% reported in 2001. A larger proportion of permanent dwellings in remote areas were in need of major repairs and replacement (36%) than those

managed by IHOs in very remote (30%) and non-remote (29%) areas.

## Australian Remote Indigenous Accommodation (ARIA) Program

The Australian Government Department of Families, Housing, Community Services and Indigenous Affairs administer a number of programs designed to improve the living environment of Aboriginal and Torres Strait Islander peoples.

The ARIA program replaced the Community Housing and Infrastructure Program (CHIP) in July 2008. Indigenous Housing and Infrastructure Agreements were extended through to December 2008 under the ARIA program prior to the commencement of the National Partnership Agreement on Remote Indigenous Housing in January 2009.

The Community Housing and Infrastructure Program (CHIP) provided funds for the construction, purchase, repair and management of community housing as well as for the provision and maintenance of housing-related infrastructure (essential services such as water, sewerage, electricity and community roads) and recurrent funding for the provision of municipal services. Through CHIP, funding was provided to:

- state and territory government housing authorities through bilateral agreements (Indigenous Housing and Infrastructure Agreements); or
- Indigenous community organisations directly.

### 10.28 AUSTRALIAN REMOTE INDIGENOUS ACCOMMODATION (ARIA) EXPENDITURE—2008–09

	\$m
National expenditure	55.6
NSW	9.3
Vic.	1.5
QLD	80.3
SA	14.0
WA	58.6
Tas.	1.2
NT	46.2
ACT	0.2
<b>Total</b>	<b>267.0</b>

Source: Department of Families, Housing, Community Services and Indigenous Affairs.



## **National Partnership Agreement on Remote Indigenous Housing (NPARIH)**

In November 2008, the Australian Government, through the Council of Australian Governments (COAG), committed \$5.5 billion over 10 years (2008–09 to 2017–18) to reform the provision of remote Indigenous housing. The National Partnership on Remote Indigenous Housing outlined responsibility between governments, with the states and Northern Territory being the major provider of housing services.

The Australian Government and state and territory governments agree that housing investment in remote Indigenous communities is a central building block to achieving the targets for 'Closing the Gap' on Indigenous disadvantage through the NPARIH. The NPARIH is targeted at:

- significantly reducing overcrowding
- increasing the supply of new houses and improving the condition of existing houses
- ensuring that rental houses are maintained and managed.

## **State Owned and Managed Indigenous Housing (SOMIH)**

The primary purpose of SOMIH is to achieve more effective Indigenous housing outcomes. Up to 31 December 2008 SOMIH was funded under the former CSHA Aboriginal Rental Housing Program. Recent priorities for this program have included a focus on providing housing in rural and remote areas, provision for maintenance and upgrades, and training for community housing providers in the Indigenous housing sector.

There were 12,375 households in SOMIH at 30 June 2008. Nationally, 33% of all SOMIH dwellings were located in major cities, 24% were located in inner regional Australia, 25% were located in outer regional Australia, and 18% were located in remote or very remote areas of Australia.

## **Home ownership**

*This section was contributed by Indigenous Business Australia (July 2009).*

Indigenous Business Australia's Home Ownership Program (IBA Homes) provides affordable home loan finance to eligible Indigenous people to assist in reducing the disparity between the rate

of home ownership in Indigenous households and that in other Australian households. According to the 2006 Census, the home ownership rate for usual resident households with Indigenous person(s) was 36%, around half the rate for other usual resident households (71%).

IBA Homes provides home loans on concessional terms to Aboriginal and Torres Strait Islander families. The scheme targets low income Indigenous families with the capacity to repay a long-term loan, but who have difficulty obtaining finance from traditional lending institutions. The loan portfolio currently includes 3,364 loans valued at \$552.4m. In 2008–09, there were 348 new loans provided. Since the program's establishment, it has helped in excess of 13,000 Indigenous families buy their own homes.

## **Home Ownership on Indigenous Land (HOIL)**

Historically, Indigenous Australians living on Indigenous community-titled land have not been able to buy their own homes because the land tenure was not secure enough to meet lenders' requirements. This has limited their ability to control living conditions, improve their long-term economic circumstances and transfer wealth to future generations.

On 5 October 2005, the Australian Government announced its intention to amend the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cwlth), in part to make long-term leases over community-titled land readily available to prospective Indigenous home owners. To complement these reforms, the HOIL Program was established to provide affordable loans and other assistance to Indigenous families.

The HOIL program is dependent on the legislative framework for land tenure in each state and territory. The Australian Government has been consulting with the states to effect the land tenure reform necessary to enable the program to be fully implemented. In the 2006 Budget, the Australian Government announced a \$107.4m expansion of HOIL over four years.

In 2008–09 nine loans were approved to families in Nguuu on Bathurst Island to purchase their own homes, effectively commencing lending under this program.

## Residential aged care

*This section was contributed by the Australian Government Department of Health and Ageing (September 2009).*

The Australian Government, through the Department of Health and Ageing, subsidises and regulates residential care for frail older people. Most residential care is provided by the non-government sector, including not-for-profit and private sector providers. Australian Government payments include subsidies paid to providers for the provision of care. Targeted capital assistance is also available to aged care homes catering largely for residents with special needs or on low incomes, or located in rural and remote areas of Australia. Residents can also be asked to pay fees and charges toward their care costs.

The main types of care are low level (hostel) services and high level (nursing home) services. The rights of care recipients are protected and promoted through the Aged Care Complaints Investigation Scheme, advocacy services and the Community Visitors' Scheme. To receive funding, each aged care home must meet specific care and building standards and be accredited by the Aged Care Standards and Accreditation Agency.

The Australian Government subsidises the costs for each person in residential aged care according to their needs.

Table 10.29 shows the number of aged care residents and table 10.30 shows expenditure on residential aged care.

**10.29 NUMBER OF RESIDENTS OF AGED CARE HOMES—30 JUNE**

	2002	2003	2004	2005	2006	2007	2008	2009
	no.	no.	no.	no.	no.	no.	no.	no.
NSW	48 978	49 851	51 128	52 469	53 165	54 266	55 091	55 701
Vic.	33 992	35 504	37 211	38 290	39 388	40 290	41 175	42 018
QLD	25 466	26 085	26 667	27 364	27 806	28 296	28 678	28 998
SA	13 268	13 830	14 425	14 918	15 277	15 547	15 700	15 737
WA	11 614	11 853	12 333	12 850	13 102	13 167	13 425	13 519
Tas.	3 781	3 896	3 975	4 071	4 167	4 153	4 254	4 201
NT	356	356	406	409	417	408	408	413
ACT	1 443	1 481	1 489	1 516	1 545	1 589	1 641	1 705
<b>Aust.</b>	<b>138 898</b>	<b>142 856</b>	<b>147 634</b>	<b>151 887</b>	<b>154 867</b>	<b>157 716</b>	<b>160 372</b>	<b>162 292</b>

Source: Department of Health and Ageing.

**10.30 AUSTRALIAN GOVERNMENT EXPENDITURE ON RESIDENTIAL AGED CARE**

	RESIDENTIAL CARE (RECURRENT)				CAPITAL GRANTS ALLOCATED			
	2005-06	2006-07	2007-08	2008-09	2005-06	2006-07	2007-08	2008-09
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
NSW	1 849.8	1 959.8	2 084.2	2 248.1	11.9	7.1	10.1	23.1
Vic.	1 316.8	1 396.4	1 495.3	1 626.8	9.7	12.5	9.5	13.6
QLD	953.7	1 005.0	1 058.8	1 127.9	8.1	7.3	4.0	0.3
SA	550.3	590.8	632.1	680.2	1.8	4.9	0.3	—
WA	441.1	465.2	495.5	536.7	2.2	6.3	7.7	10.6
Tas.	147.2	153.4	161.5	167.7	6.5	2.6	2.6	5.4
NT	17.7	17.3	17.9	18.6	0.5	2.9	6.3	—
ACT	51.6	54.2	56.7	61.3	—	—	—	—
Central office (accrual)	—	13.4	—	—	—	—	—	—
<b>Aust. (a)</b>	<b>5 328.2</b>	<b>5 655.5</b>	<b>6 002.9</b>	<b>6 474.0</b>	<b>40.7</b>	<b>43.5</b>	<b>40.5</b>	<b>53.0</b>

— nil or rounded to zero (including null cells)

(a) Includes expenditure by the Department of Health and Ageing and the Department of Veterans' Affairs, in accrual terms.

Source: Department of Health and Ageing.

## **Bibliography**

### **ABS products**

*Australian Social Trends* (4102.0)

*House Price Indexes: Eight Capital Cities* (6416.0)

*Housing and Infrastructure in Aboriginal and Torres Strait Islander Communities, Australia* (4710.0)

*Housing Finance, Australia* (5609.0)

*Housing Occupancy and Costs, Australia* (4130.0)

*Measures of Australia's Progress* (1370.0)

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Australian Institute of Health and Welfare, last viewed November 2009, <<http://www.aihw.gov.au>>

Department of Families, Housing, Community Services and Indigenous Affairs, last viewed November 2009, <<http://www.fahcsia.gov.au>>

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Indigenous Business Australia, last viewed November 2009, <<http://www.iba.gov.au>>

## HEALTH

The Australian health system has a diversity of arrangements for planning, funding, delivering and regulating health services, with a mix of private and public sector involvement.

The Australian Government, through the Health and Ageing portfolio, has significant financial and policy responsibility for health services, including hospitals, public health and mental health, while the state and territory governments are largely responsible for the direct provision of such services. Local governments and non-government organisations are also involved in the direct provision of health services. Private, non-salaried practitioners provide most medical, dental and allied health care. Two major national subsidy schemes – Medicare and the Pharmaceutical Benefits Scheme – are funded by the Australian Government to cover all Australian citizens and permanent residents. The schemes are discussed in *Health care delivery and financing*. In 2007–08 total expenditure on health as a proportion of Australia's gross domestic product was 9.1%.

This chapter contains two articles. The article *Children who are Overweight or Obese* discusses the influence of socio-economic factors and physical activity on childhood obesity. *Mental Health* examines the prevalence of anxiety, affective and substance use disorders in Australians aged 16–85 years.

Data in this chapter are obtained from the most up-to-date sources available, including information from the ABS on the health status of Australians collected in the 2007–08 *National Health Survey* (NHS), the 2003 *Survey of Disability, Ageing and Carers* (SDAC) and from Causes of Death collection. Previous health surveys were conducted in 1995, 2001 and 2004–05. The chapter also draws extensively on data from the Australian Institute of Health and Welfare (AIHW) and the Australian Government Department of Health and Ageing (DoHA).

Data from the 2007–08 NHS in this chapter are presented using the *International Classification of Diseases*, 10th revision (ICD–10).

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## How Australians rate their health

The World Health Organisation (WHO) defines health as 'a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity'. While the level of disease or infirmity can be assessed by mortality, disability and morbidity statistics, the presence of positive wellbeing is more difficult to measure.

### Health and wellbeing

In 2007–08 the majority of Australians aged 15 years and over considered themselves to be in good health, with 85% reporting their health status as good, very good or excellent. This is similar to the proportion reported in the 2004–05 NHS (84%). The proportion of people reporting

fair or poor health increased with age, from 7% among those aged 15–24 years to 39% among those aged 75 years and over.

In 2007–08 people with higher educational qualifications were generally more likely to report their health to be excellent. Similarly, people who were employed or with a higher income were more likely to report their health as very good or excellent (table 11.1).

## Health status

### Morbidity

The 2007–08 NHS found 75% of the Australian population reported one or more long-term conditions (i.e. conditions that have lasted, or are

**11.1 SELF-ASSESSED HEALTH STATUS(a)(b)—2007–08**

<i>Population Characteristics</i>	<i>Very</i>				
	<i>Excellent</i>	<i>good</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>
	%	%	%	%	%
Highest educational qualification(c)					
Bachelor degree or above	28.7	39.0	23.4	6.6	2.2
Advanced Diploma/Diploma Certificate	23.7	39.4	27.4	7.3	2.2
Certificate	17.1	36.1	32.3	10.8	3.6
Labour force status					
Employed	22.9	40.0	28.3	7.3	1.5
Unemployed	20.4	29.8	32.0	14.5	3.3
Not in the labour force	15.0	26.6	30.3	18.4	9.7
Location					
Major cities	21.4	35.7	29.0	10.2	3.8
Inner regional	19.8	34.9	28.5	12.0	4.8
Outer regional/ other areas	15.3	35.9	30.6	13.3	4.9
Household composition					
Person living alone	16.2	30.6	30.1	16.2	6.9
Couple only	17.6	35.0	28.9	12.9	5.6
Couple with children	24.8	37.9	27.5	7.8	2.0
All other households	18.1	34.8	31.5	11.1	4.5
Household income(d)					
1st quintile	10.1	22.4	30.6	24.6	12.2
5th quintile	26.1	40.5	26.1	6.1	1.1
Index of disadvantage(e)					
1st quintile	13.2	32.4	30.7	16.2	7.4
5th quintile	26.4	38.4	25.0	8.0	2.1
Persons	20.3	35.5	29.1	11.0	4.1

(a) This table shows the percentage of persons in the specified population (eg persons employed) who have reported their health status as either excellent, very good, good, fair or poor. The age distribution of the population should be considered in interpreting these estimates.

(b) Persons aged 15 years and over.

(c) 18 years and over

(d) Gross weekly cash income.

(e) Where the first quintile represents the 20% of the total population living in areas with the most disadvantage and the fifth quintile represents the 20% of the population with the least disadvantage.

Source: ABS data available on request, 2007–08 National Health Survey.

expected to last, for six months or more). In most cases, respondents were asked about conditions which had been medically diagnosed.

Among adults aged 18 years and over in 2007–08, women in general were more likely than men to report selected long-term conditions with the exception of total/partial hearing loss, back problems and diabetes (table 11.2). They have a longer life expectancy at birth, 83.5 years compared with 78.7 for men (based on statistics for 2006). This results in higher proportions of women in the older age groups where long-term conditions are common.

The most commonly reported long-term conditions were problems with eyesight affecting

60% of adults, including long and short sightedness (32% and 28% respectively), arthritis (20%), back problems (18%), hayfever and allergic rhinitis (17%), deafness (13%) hypertensive disease (12%), and asthma (10%).

The most commonly reported long-term conditions among children and young adults were respiratory conditions (17% of children under 15 years and 28% of persons aged 15–24 years), with asthma being the most prevalent for children under 15 years of age (10%) (graph 11.3) and hayfever and allergic rhinitis for those aged 15–24 (17%).

While respiratory conditions were also common among people aged 65 years and over (29%), other conditions were more prevalent in this age group. Sight conditions, arthritis, hypertension and hearing loss were the most common long-term conditions among those aged 65 years and over.

### 11.2 SELECTED LONG-TERM CONDITIONS(a)(b)—2007–08

	Males	Females	Persons
	%	%	%
Long sightedness	29.0	35.5	32.3
Short sightedness	25.0	31.0	28.1
Arthritis	16.9	22.6	19.8
Back problems(c)	18.3	17.1	17.7
Hayfever & allergic rhinitis	15.9	18.3	17.1
Total/partial hearing loss	16.8	9.3	13.0
Hypertensive disease	11.6	13.0	12.3
Asthma	7.8	11.7	9.8
Diabetes mellitus	6.0	4.4	5.1

(a) Conditions which have lasted or are expected to last six months or more.

(b) Persons aged 18 years and over.

(c) Includes back pain, back problems n.e.c and disc disorders.

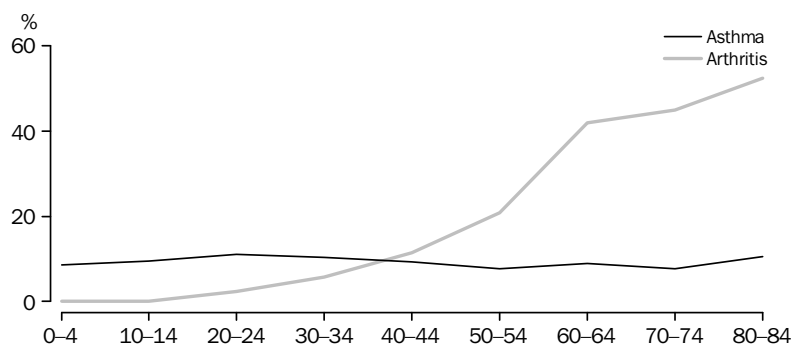
Source: ABS data available on request, 2007–08 National Health Survey.

### Mortality

There were 137,854 deaths registered in 2007, consisting of 70,569 males and 67,285 females. The age-standardised death rate of 595 deaths per 100,000 population in 2007 was 4.6% lower than the corresponding rate of 624 in 1997. This is consistent with continuing improvements in life expectancy in Australia (see the *Population* chapter).

Malignant neoplasms (cancer) and diseases of the cardiovascular system, together account for almost two-thirds of all deaths. Over the ten years to 2007, death rates from cancer and diseases of

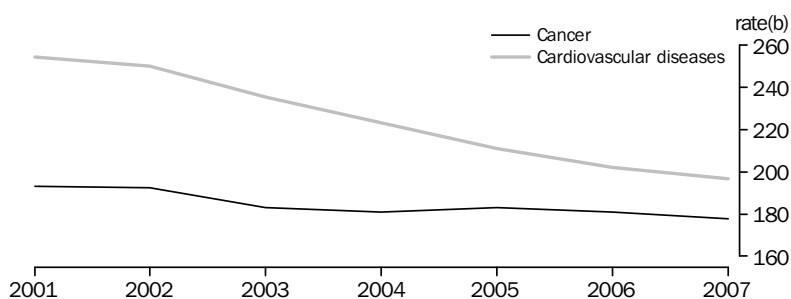
### 11.3 SELECTED LONG-TERM CONDITIONS(a), BY AGE 2007–08



Note: (a) Conditions which have lasted or are expected to last six months or more.

Source: ABS data available on request, 2007–08 National Health Survey.

#### 11.4 DEATH RATES FROM CARDIOVASCULAR DISEASE AND CANCER(a)



(a) Disease of the cardiovascular system (ICD-10 code 100-199), Malignant neoplasms (cancer) (ICD-10 code C00-C97).  
(b) Per 100,000 population, age standardised to the 2001 estimated resident population (persons)

Source: ABS data available on request, Causes of Death collection.

the cardiovascular system have both declined, though the decline has been more substantial in death rates from diseases of the cardiovascular system (graph 11.4).

### Causes of death

Ischaemic heart diseases (heart attack and related disorders) are the leading causes of death, followed by cerebrovascular disease for both males and females (table 11.5). Gender differences are apparent among other leading causes.

Lung cancer is ranked third for males followed by chronic lower respiratory diseases; while for females, dementia and Alzheimer's disease is third and trachea and lung cancer fourth.

### International comparisons

Australia's death rates from all causes are among the lowest in the world, consistent with Australia's relatively high life expectancy. Life expectancy at birth for males and females in selected countries are shown in table 11.6.

### Infant mortality

In 2007, 1,179 infant deaths were registered in Australia. The infant mortality rate (IMR) is defined as the number of deaths of children under one year of age per 1,000 live births. The infant mortality rate of 4.1 infant deaths per 1,000 live births in 2007-08 was lower than the 2005-06 rate (4.9), and less than half that recorded in 1987 (8.7 deaths per 1,000 live births).

Australia's infant mortality has declined significantly in the last 100 years. In 1907, around one in 12 infants did not survive to their first birthday (IMR of 81.1 in 1907); in 2007, approximately one in 250 infants born did not survive their first year of life (IMR of 4.1) (graph 11.7).

The decline in infant mortality in the early 20th century has been linked to improvements in public sanitation, increased standard of living and health education and improvements in medical technology such as neonatal intensive care units.

### Disability status

The World Health Organisation (WHO) defines disability in the context of health as 'an umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors)'.

The 2003 Survey of Disability, Ageing and Carers (SDAC) found that one in five people in Australia (20%) had a reported disability, with the rate much the same for males and females (20%). The disability rate increased with age, reaching 92% for those aged 90 years and over.

Some 6% of the population had a profound or severe core activity limitation (sometimes or always needing assistance with self-care, mobility or communication). The level of profound or

### 11.5 LEADING CAUSES OF DEATH 2007(a)

Rank (b)	Underlying Cause of Death	ICD-10 code	rate (c)
<b>MALES</b>			
1	Ischaemic heart disease	I20–I25	128
2	Cerebrovascular disease	I60–I69	49
3	Trachea and lung cancer	C34	46
4	Chronic lower respiratory disease	J40–J47	33
5	Prostate cancer	C61	31
6	Dementia and Alzheimer's disease	F01, F03, G30	24
7	Colorectal cancer	C18–C21	22
8	Blood and lymph cancer	C81–C96	21
9	Diabetes	E10–E14	20
10	Suicide (d)	X60–X84	14
All causes			595
<b>FEMALES</b>			
1	Ischaemic heart disease	I20–I25	71
2	Cerebrovascular disease	I60–I69	47
3	Dementia and Alzheimer's disease	F01, F03, G30	31
4	Trachea and lung cancer	C34	24
5	Breast cancer	C50	22
6	Chronic lower respiratory disease	J40–J47	19
7	Colorectal cancer	C18–C21	15
8	Diabetes	E10–E14	14
9	Diseases of the kidney and urinary system	N00–N99	12
10	Heart failure	I50	11
All causes			486

- (a) Cause of death data for 2007 are subject to revision.  
 (b) Causes listed are the leading causes of death registered in 2007 based on the WHO recommended tabulation of leading causes.  
 (c) Rate per 100,000.

- (d) Excludes sequelae of suicide (Y87.0). Care needs to be taken in interpreting figures relating to suicide due to limitations in the data.

Source: ABS data available on request, 2007 Causes of Death.

severe core activity limitation gradually increased from 3% among those aged 0–4 years, to 10% among those aged 65–69 years, then increased sharply to 74% for those aged 90 years and over (graph 11.8).

## Health risk behaviours

A range of factors influence the health outcomes of an individual or the population. These include the interaction of socio-economic, biomedical and environmental factors which contribute to illness and injury. There are also specific lifestyle behaviours which may have further impact on

people's health, increasing the risk of chronic disease.

The 2007–08 NHS collected information on a number of lifestyle behaviours:

- 21% of adults were current smokers.
- 73% of adults reported sedentary or low exercise levels in the two weeks prior to interview.
- 13% of adults consumed alcohol at levels which, if continued, would be risky or a high risk to their health in the long term.

The following information is based on the National Health and Medical Research Council's



### 11.6 LIFE EXPECTANCY AT BIRTH, OECD COUNTRIES (YEARS) – 2006

	Female	Male
Australia	83.5	78.7
Austria	82.7	77.1
Belgium	82.3	76.6
Canada	83.0	78.4
Czech Republic	79.9	73.5
Denmark	80.7	76.1
Finland	83.1	75.9
France	84.1	77.2
Germany	82.4	77.2
Greece	82.0	77.1
Hungary	77.4	69.0
Iceland	83.0	79.4
Ireland	82.2	77.4
Italy	84.2	78.5
Japan	85.8	79.0
Korea	82.4	75.7
Luxembourg	81.9	76.8
Mexico	77.2	72.4
Netherlands	81.9	77.6
New Zealand	82.2	78.0
Norway	82.9	78.2
Poland	79.6	70.9
Portugal	82.3	75.5
Slovakia	78.2	70.4
Spain	84.4	77.7
Sweden	82.9	78.7
Switzerland	84.2	79.2
Turkey	75.3	71.1
United Kingdom	81.7	77.3
United States of America	80.7	75.4

Source: OECD Health Data 2009.

(NHMRC) Dietary Guidelines for Australians recommended daily intake of fruit and vegetables at specific ages:

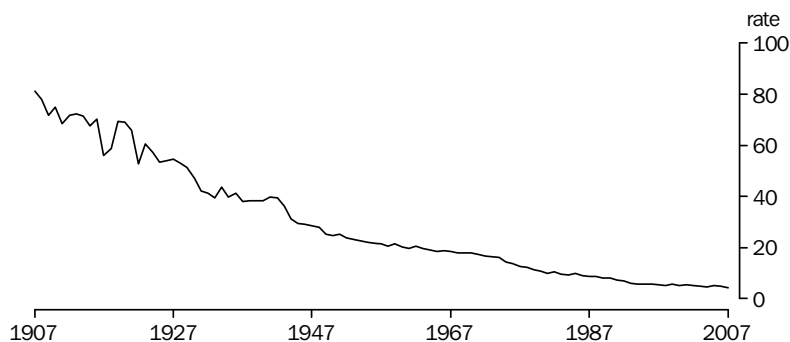
- 9% of adults reported they usually consumed five or more serves of vegetables every day.
- 51% of adults reported they usually consumed two or more serves of fruit every day.

Comparisons between the 1995 and 2007–08 National Health Surveys showed an increase in the proportion of adults who were overweight or obese. In 1995 38% of adults were overweight and 19% obese. The 2007–08 results found that 37% of adults were overweight and 25% obese. For more information on this topic see article, *Children who are Overweight or Obese* in this edition of *Year Book Australia*.

- 61% of adults were classified as overweight or obese based on their measured height and weight.
- 25% of children aged 5–17 were classified as overweight or obese based on their measured height and weight.

The proportion of adults currently smoking decreased from 24% to 21% between 1995 and 2007–08. There was an increase in the proportion of adults reporting sedentary or low levels of exercise from 69% to 73% and the proportion of adults drinking at risky levels (8% to 13%).

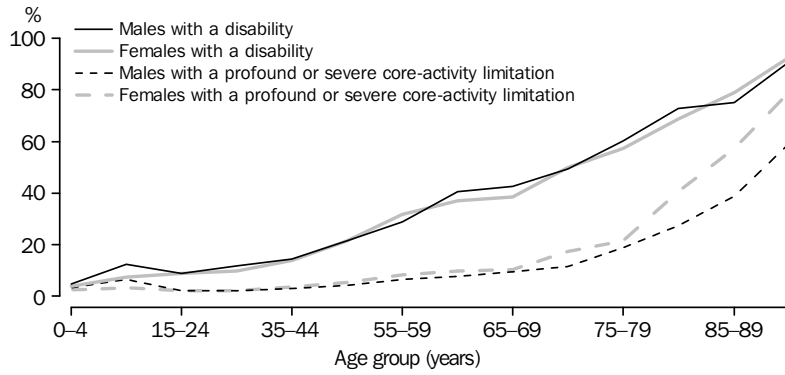
### 11.7 INFANT MORTALITY RATES(a) 1907–2007



(a) Infant deaths per 1,000 live births.

Source: Australian Historical Population Statistics (3105.0.65.001); Deaths, Australia (3302.0).

### 11.8 DISABILITY RATES—2003



Source: ABS data available on request, *Survey of Disability, Ageing and Carers*.

## Children who are overweight or obese

Obesity is a major contributor to the global burden of chronic disease and disability. Around the world, levels of childhood obesity have been rising for a number of reasons including a shift in diet towards increased intake of foods that are high in fat and sugars and a reduction in the amount of time spent on physical activity.

Obesity not only has significant health and social impacts, but also considerable economic impacts. According to Access Economics, in 2008, the total annual cost of obesity in Australia, including health system costs and productivity and carers costs was estimated to be around \$58 billion.

In 2007, the Australian Government announced the development and promotion of healthy eating and physical activity guidelines for children. These measures will form part of the Government's Plan for Early Childhood and Plan for Tackling Obesity. One of the main aims of the National Preventative Health Taskforce is to develop a National Obesity Strategy.

### Changes over time

In 2007–08, one-quarter of all Australian children, or around 600,000 children aged 5–17, were overweight or obese, up four percentage points from 1995. The obesity rate for children increased from 5% in 1995 to 8% in 2007–08 (graph 11.9).

### Age and sex

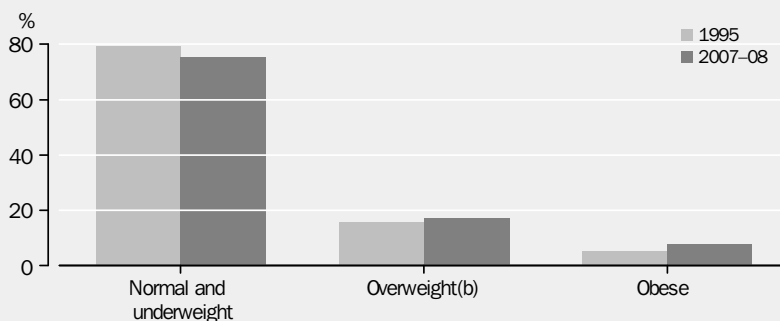
Between 1995 and 2007–08 there was a significant increase in the proportion of boys who were obese. The rate of obesity for boys aged 5–17 years doubled from 5% in 1995 to 10% in 2007–08. Increases in obesity occurred for younger and older boys. For boys aged 5–12 years, 8% were obese, up from 4% in 1995. Of boys aged 13–17 years, 13% were obese, up from 6% in 1995.

While for boys there were significant increases in obesity, there were no such increases for girls. The obesity rate for girls aged 5–17 remained unchanged at 6%. While the obesity rate for girls did not change from 1995 to 2007–08, the proportion of girls who were overweight increased. The increase occurred for girls aged 13–17 years, up from 12% in 1995 to 20% in 2007–08. In contrast, there was no change for younger girls aged 5–12 years, with the overweight rate remaining constant at 17% in both time periods.

### Socio-economic factors

The Socio-Economic Indexes for Areas (SEIFA) Index of Disadvantage summarises various attributes such as income, unemployment and educational attainment of an area in which people live. Children living in the areas of greatest relative disadvantage had more than double the rate of obesity (28%) of children living in areas with the lowest relative disadvantage

11.9 CHILDRENS BODY MASS INDEX – 1995, 2007–08(a)



Notes: (a) Based on measured height and weight of children aged 5–17 years.

(b) Differences between the numbers in 1995 and 2007–08 are not statistically significant.

Source: National Health Survey: Summary of Results, 2007–08, (4364.0).

(13%). Aside from socio-economic differences between areas in terms of education, income and employment, some areas may also offer greater opportunities for physical activity and greater access to healthy food options.

## Physical activity

The 2004 Australia's Physical Activity Recommendations for Children suggest that children aged 5–18 years need a minimum of 60 minutes of moderate to vigorous physical activity every day. The following section looks at physical activity using results from two ABS surveys. The 2006 Children's Participation in Culture and Leisure Activities Survey collected information on the participation of children aged 5–14 years in organised sports and informal sports during the 12 months prior to interview. It provides insight into some of the physical activities in which children aged 5–14 are participating. The 2007–08 National Health Survey collected information for children aged 15–17 only.

### Children aged 5–14 years

In 2006, 63% of children had played sport which had been organised by a school, club or association outside of school hours, an increase from 59% in 2000. Over the six year period, girls' participation in organised sport rose by six percentage points from 52% to 58%, compared with three percentage points for boys from 66% to 69%. While the participation rates of about 45% were similar for children aged 5 years, by 13 years of age the participation rate for boys was 73% and for girls was 55%. The highest rate of

participation for boys was at 10 years (77%), while for girls it was 9 years (67%) (graph 11.10).

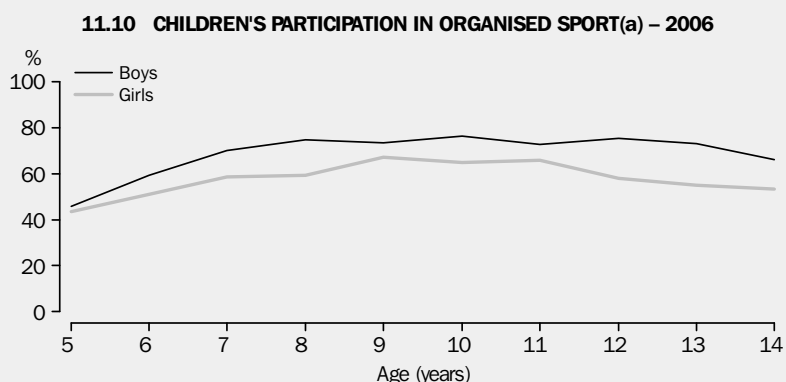
Children who did participate were spending 6 hours per fortnight on average on organised sport participation. Swimming and outdoor soccer were the most popular sports. The survey also collected information on informal sports, such as bike riding, rollerblading and skateboarding, to get some indication of children's involvement in informal physical activity. The survey found that around two thirds of children had been bike riding and a quarter had been skateboarding or rollerblading in the previous two weeks. The amount of time spent on these informal activities was the same as organised sport participation, with an average of 6 hours per fortnight (graph 11.10).

### Children aged 15–17 years

In 2007–08 over three-quarters of children aged 15–17 took part in sport or recreational exercise in the two weeks prior to the National Health Survey. However, just under one quarter said that they either did no exercise, or very low amounts during the two week period.

### Sedentary lifestyles

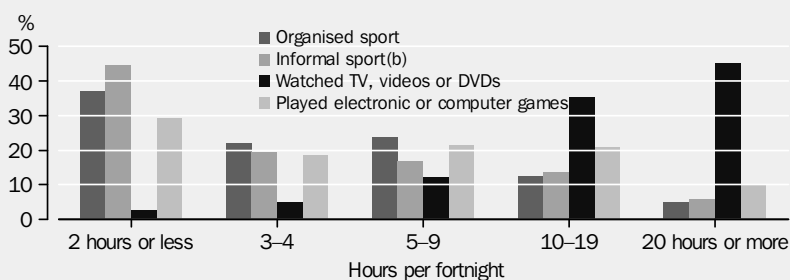
According to the Department of Health and Ageing *Australia's Physical Activity recommendations for children*, children who do not get enough physical activity and spend significant amounts of time in sedentary states increase their likelihood of poor fitness, raised cholesterol and being overweight in adulthood. Related research has also shown that the



Note: (a) In the 12 months prior to interview.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2006, (4901.0)*.

### 11.11 PROPORTION OF CHILDREN'S TIME SPENT ON SELECTED ACTIVITIES(a) – 2006



Notes: (a) Children aged 5–14 years who were involved in these activities outside of school hours, during the two school weeks prior to interview.  
 (b) Average time spent on informal activities including bike riding and skateboarding/rollerblading.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2006 (4901.0)*.

incidence of obesity is highest among children who watch TV for long periods each day, compared with children who watch TV for a smaller amount of time each day. Australian guidelines recommend that children should not spend more than two hours a day watching TV, playing computer games or using other electronic media for entertainment.

In 2006, almost all children aged 5–14 had watched television, videos or DVDs during the two-week period of the survey and almost two-thirds had played electronic or computer games. Around 45% of children who watched television, videos or DVDs, and 10% of children who played electronic or computer games, did so for 20 hours or more over the fortnight period. Overall, the average amount of time spent on these two activities by most children averaged across a two-week period, was 2 hours per day (graph 11.10).

### Data sources and definitions

The information in this article comes from the 2007–08 NHS and 2006 Children's Participation in Cultural and Leisure Activities Survey (4901.0). Physical activity results from these surveys may not represent total physical activity, since the surveys only cover sport organised by a school, club or association which has been played outside of school hours. The article looks at children aged 5–17 years unless stated otherwise. Body Mass Index (BMI) was calculated from measured height and weight information (using the formula weight (kg) divided by the square of height (m)). Height and weight were measured

for children in the 2007–08 NHS. Overweight and obesity are defined according to the BMI scores, indicating a relationship between height and weight. There are BMI cutoffs for children which are based on the definitions of adult overweight and obesity adjusted to specific age and sex categories for children. For a detailed list of the cutoffs used to calculate BMI for children, please see the *National Health Survey Users' Guide* (4363.0.55.001).

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## Chronic disease

Diseases such as diabetes, heart disease, cancer and arthritis are associated with a high burden of disease and account for a high financial burden in Australia. The burden of disease and injury is a measurement of the time lost due to premature death along with years of healthy life lost due to disability. Cancer and cardiovascular disease accounted for 37% of the total burden of disease and injury in Australia in 2003, mortality from these diseases accounting for 80% of that burden. Mental disorders and neurological and sense disorders were the next leading causes of the burden of disease and injury, together accounting for a further 25% of the total burden. However, mortality from these disorders contributed little.

Many chronic diseases can be prevented or delayed by addressing lifestyle factors such as poor diet or insufficient exercise, or by better management of conditions such as high blood pressure or obesity. There are a range of initiatives in place to prevent and manage chronic disease and reduce its impact.

Table 11.12 shows health expenditure on seven major disease groups. In total, expenditure in these areas in 2004–05 accounted for \$25.5 billion (b), equivalent to 48% of allocated health expenditure for the year.

## Cardiovascular disease

Cardiovascular disease encompasses all diseases and conditions involving the heart and blood vessels including high blood pressure, heart disease, stroke and peripheral vascular diseases. While ischaemic heart disease has been the leading cause of death in Australia over the past 10 years, the number of deaths due to this cause has decreased, from 28,299 in 1998 to 22,729 in 2007.

In 2004–05, the highest health expenditure of all disease groups was for cardiovascular disease, accounting for 11.3% of total allocated health spending.

### Morbidity

The 2007–08 NHS indicated that around 3.4 million Australians (16%) reported having a cardiovascular disease as a long-term condition (having lasted or being expected to last for six months or more). The most common cardiovascular disease reported was hypertension (high blood pressure) reported by 9% of the population. In the 45–54 age group, 10% reported having hypertension. Of those aged 75 years and over, the proportion increased to 39%.

Cardiovascular disease was mostly experienced by people in middle and older age groups. Almost one in five (19%) of those aged 45–54 years had a

**11.12 HEALTH EXPENDITURE BY DISEASE GROUP, 2004–05 (\$MILLION)**

<i>Selected disease groups</i>	<i>Hospital(a)</i>	<i>Pharmaceuticals(b)(c)</i>	<i>Community and public health(d)</i>	<i>Research</i>	<i>Total</i>
Cardiovascular disease	4 142	1 636	—	164	5 942
Arthritis and other musculoskeletal disease	3 184	680	—	92	3 956
Injuries	3 267	124	—	14	3 405
Mental disorders	1 949	854	1 177	148	4 128
Cancer	2 951	236	222	378	3 787
Diabetes mellitus	659	275	—	55	989
Respiratory disease	2 516	725	—	69	3 310
<b>Total selected disease groups</b>	<b>18 668</b>	<b>4 530</b>	<b>1 399</b>	<b>920</b>	<b>25 517</b>
<b>Total allocated health expenditure</b>	<b>36 121</b>	<b>8 144</b>	<b>1 399</b>	<b>1 715</b>	<b>52 660</b>

— nil or rounded to zero (including null cells)

(a) Includes public and private acute and psychiatric hospitals. Also includes medical services provided to private admitted patients in hospital.

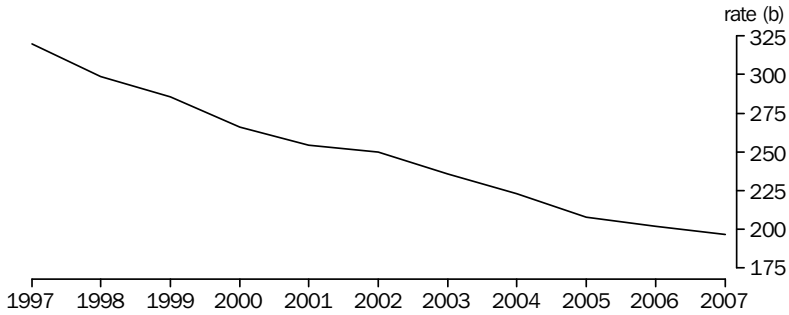
(b) Includes all pharmaceuticals for which a prescription is needed, including benefit paid, private and under copayment prescriptions.

(c) Excludes over the counter medicaments such as vitamins, minerals, patent medicines, first aid and wound care products, analgesics, feminine hygiene products, coldsore preparations and a number of complementary health products that are sold in both pharmacies and other retail outlets.

(d) Comprises expenditure on community mental health services and public health cancer screening programs.

Source: Australian Institute of Health and Welfare, Health Expenditure Australia 2007–08. HWE 46, Canberra.

### 11.13 DEATH RATES FOR CARDIOVASCULAR DISEASE(a) 1997–2007



(a) ICD-10 codes I00–I99. (b) Per 100,000, age standardised to 2001 population (persons).

Source: Australian Institute of Health and Welfare, GRIM (General Record of Incidence of Mortality) Books, Canberra.

current long-term cardiovascular disease, rising progressively to 62% of those aged 75 years and over.

#### Mortality

Despite declines in mortality rates in the last 30 years, cardiovascular disease remains one of the leading causes of death in Australia in 2007, accounting for 46,626 or 34% of all deaths. Ischaemic heart disease accounted for 17% of all deaths, and cerebrovascular diseases a further 8%.

The standardised death rate for cardiovascular disease was 197 per 100,000 population in 2007, a decrease from 201 per 100,000 population in 2006 and 300 per 100,000 population in 1998 (graph 11.13). The standardised death rate for males in 2007 was 236 per 100,000 and 164 per 100,000 for females.

#### Arthritis and other musculoskeletal diseases

Osteoarthritis, rheumatoid arthritis and osteoporosis are the most commonly occurring musculoskeletal conditions. Although they are not immediately life threatening and have low associated mortality, they have substantial influence on the quality of life and impose a heavy economic burden on the community.

In 2004–05, total health expenditure attributable to musculoskeletal diseases was \$4.0b, which accounted for 7.5% of allocated health system expenditure (table 11.12).

Osteoarthritis is one of the most common types of arthritis and affects the cartilage in the joints. Cartilage cushions the ends of bones where bones meet to form a joint. In osteoarthritis this cartilage degenerates. Osteoarthritis is most commonly found in the knees, neck, lower back, hip and fingers.

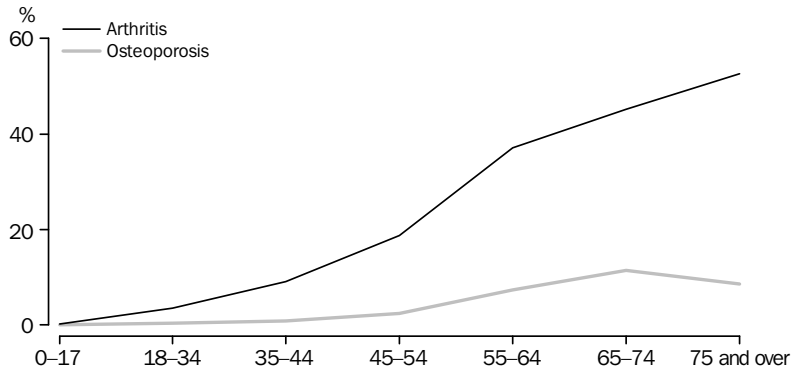
Rheumatoid arthritis is the most common form of inflammatory arthritis. Inflammatory arthritis is characterised by joint swelling and destruction. In rheumatoid arthritis the immune system attacks the tissues lining the joints. As a result of this attack, inflammation occurs causing pain, heat and swelling. The disease can also cause inflammation of connective tissue, blood vessels and organs.

Osteoporosis (porous bones) is a disease where bone density and structural quality deteriorate, leading to an increased risk of fracture. The most common sites of fracture are the bones of the spine, the hip and the wrist. However other bones are commonly affected, including the shoulder, ribs and the pelvis.

#### Morbidity

The 2007–08 NHS shows 15% of people reported that they currently had arthritis; 13% of males and 17% of females. Of those with arthritis, 51% had osteoarthritis and 14% rheumatoid arthritis. The proportion of people with arthritis increased with age from less than 1% of people less than 25 years to 48% of people aged 65 years and over (graph 11.14).

### 11.14 PREVALENCE OF ARTHRITIS AND OSTEOPOROSIS 2007-08



Source: ABS data available on request, 2007-08 National Health Survey.

Overall, 3% of people had osteoporosis: 1% of males and 5% of females. The proportion of people with osteoporosis increased, from less than 1% of people aged less than 45 to 11% of people aged 65-74, then decreased to 9% in people aged over 75.

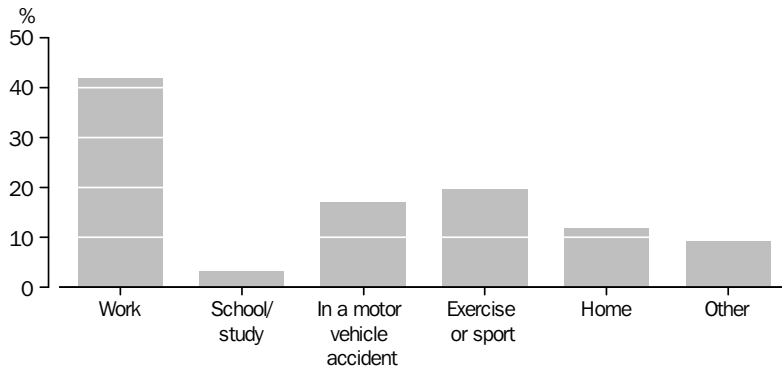
### Injuries and deaths due to external causes

Injury and poisoning are broad terms that encompass the adverse effects on the human body that may result from events. These events may be accidental, such as falls, vehicle accidents and exposure to chemicals, or intentional such as suicide attempts and assaults by other people. Such events, and the factors involved in them, are collectively known as 'external causes of injury and poisoning', and are a significant source of

preventable illness, disability and premature death in Australia.

Males and females, and people in different age groups, experience different levels and types of risk from injury events (risk in this sense refers to both the probability of an injury event occurring and the severity of the injuries that may result). High risk drinking, drug use and hospitalisation due to transport accidents and assault are all more prevalent among the 15-24 age groups. Young people, especially young men, are at a greater risk than other age groups of experiencing injury and death due to the above behaviours.

### 11.15 LOCATION AT WHICH INJURY OCCURRED



Source: ABS data available on request: 2007-08 National Health Survey.



## Morbidity

The 2007–08 National Health Survey found that nearly 2.5 million people (12%) had a condition that was caused by injury. The most common conditions that were caused by an injury were back problems, affecting 8.2% of people, and partial deafness or hearing loss, affecting 1.0% of people.

Injuries that resulted in long-term conditions most commonly occurred at work (42%), as a result of exercise or sport (20%), in a motor vehicle accident (17%), or in the home (12%) (graph 11.15).

## Mortality

In 2007, external causes were responsible for 7,893 deaths, or 5.7% of all registered deaths. The standardised death rate for external causes was 36.1 per 100,000 people in 2007, a decrease from 36.7 in 2006, and 44.6 in 1998.

Males are more likely to die from external causes than females, and at a younger age. In 2007, consistent with previous years, nearly two-thirds (65%) of deaths resulting from external causes were males. Median age at death for deaths from external causes was 45.5 years for males and 66.6 years for females.

There were 1,880 deaths attributed to intentional self-harm (suicide) in 2007, accounting for 24% of deaths from external causes. Transport accidents accounted for 1,340 deaths, or 17% of total deaths from external causes.

## Cancer

Cancer is a disease of the body's cells. Normally, cells grow and reproduce in an orderly manner, however, sometimes, abnormal cells will grow. These abnormal cells may then reproduce and spread uncontrolled throughout the body. Cancer is the term used to describe about 100 different diseases including malignant tumours, leukaemia (a disorder of the white blood cells), sarcoma of the bones, Hodgkin's disease and non-Hodgkin's lymphoma (affecting the lymph nodes) in which uncontrolled cell growth threatens the rest of the body. Malignant neoplasms (cancer) are a major cause of death in Australia and accounted for 7.2% of allocated health system expenditure in 2004–05 (table 11.12).

## Morbidity

It should be noted that the 2007–08 National Health Survey excluded people in hospitals, nursing and convalescent homes and hospices. This is expected to have a greater effect on data for cancer than for most other conditions.

In the 2007–08 NHS, an estimated 326,600 Australians (1.6%) reported they currently had a medically diagnosed malignant neoplasm.

According to the AIHW and the Australasian Association of Cancer Registries there were 100,514 new cancer cases registered in 2005. During the 1998–2004 period, the five-year relative survival proportions calculated for all cancers for females were 64% (53% in 1982–1986), higher than those for males – 58% (41% in 1982–86). All cancer 5 year relative survival rates increased for diagnoses made during the 1998–2004 period, compared to earlier data, which may be a result of earlier detection and treatment advances.

Of all cancers in 2005, prostate cancer was the most commonly occurring followed by colon and rectal. The next most common cancers were breast, followed by skin melanoma and lung cancer (table 11.16). Cancer occurred more commonly in males than females and was most prevalent in people aged 65 years and over (6%) but just over two-thirds (66%) of those with skin cancer were aged less than 65 years.

## Mortality

In 2007 cancer accounted for 40,287 deaths or 29% of all deaths registered. Of these, there were 22,774 male deaths and 17,513 female deaths (table 11.16).

More males than females died of cancer with 130 male deaths per 100 female deaths for the 2007 registration year. The median age of people dying from cancer in 2007 was 74.7 years for males, 75.3 years for females and 74.9 years for all cancer deaths. Potential life lost due to cancer deaths was 186,439 years for males and 148,808 years for females.

Mortality is influenced by the number of new cases of cancer (incidence) and the length of time lived after the initial diagnosis of cancer is made (survival). Relative survival is a measure that takes into consideration the crude survival (time

## 11.16 DEATHS, INCIDENCE AND SURVIVAL RATES FOR COMMON REGISTERABLE CANCERS

Cancer site	DEATHS (2007)		INCIDENCE (2005)		FIVE YEAR SURVIVAL(a)	
	Males	Females	Males	Females	Males	Females
	no.	no.	no.	no.	%	%
Stomach	704	425	1 228	676	24.4	25.3
Colon	1 295	1 244	4 400	4 184	60.9	61.6
Rectum(b)	474	293	2 222	1 247	61.9	64.5
Pancreas	1 233	1 015	1 119	1 062	4.5	4.7
Lung(c)	4 713	2 910	5 738	3 444	10.7	14.0
Skin (melanoma)	864	415	6 044	4 640	89.7	94.1
Breast	26	2 680	95	12 170	82.0	87.8
Uterus	—	338	—	1 830	—	82.1
Cervix	—	208	—	734	—	71.8
Ovary	—	848	—	1 205	—	39.8
Prostate	2 938	—	16 349	0	85.3	—
Testis	26	—	677	0	96.8	—
Bladder	630	295	1 707	555	62.3	54.8
Kidney	539	316	1 528	769	65.6	66.0
Brain	666	457	812	610	18.5	19.4
Thyroid	41	64	396	1 216	87.7	95.3
Unknown primary	1 318	1 211	1 658	1 568	10.6	7.6
Hodgkin's Disease	43	27	279	248	84.8	85.8
Non-Hodgkin's Lymphoma	733	586	2 094	1 809	61.6	62.6
Leukemia	892	577	1 568	1 023	48.2	47.3
All cancers	22 774	17 513	56 158	44 356	58.4	64.1

— nil or rounded to zero (including null cells)

(a) Cohort of records diagnosed in 1998–2004.

(b) Excluding anus and anal canal.

(c) Including trachea and bronchus.

Source: ABS data available on request, 2007 Causes of Death; Australian Institute of Health and Welfare, Cancer survival and prevalence in Australia: cancers diagnosed from 1992 to 2004, CAN 38.

between diagnosis and death) in the cancer population, and the corresponding expected survival in the general population.

### Diabetes mellitus

Diabetes mellitus is a long-term condition characterised by high blood glucose level, which results from either the body producing little or no insulin, or the body not using the insulin properly (insulin resistance). Insulin is a hormone produced by the pancreas that helps the body cells use glucose.

There are three major types of diabetes mellitus. Type 1 diabetes is marked by extremely low levels of insulin. Type 2 diabetes is marked by reduced levels of insulin, or the inability of the body to use insulin properly. Gestational diabetes (which occurs in about 5% of pregnancies of women who have not been previously diagnosed with diabetes) is not usually long-term. However, for women diagnosed with gestational diabetes,

there is an increased risk of developing Type 2 diabetes later in life.

Diabetes is a costly disease, associated with substantial morbidity and mortality, primarily from cardiovascular complications, eye and kidney diseases, and limb amputations. In 2004–05, total health expenditure attributable to diabetes was nearly \$1.0b, accounting for 1.9% of allocated recurrent health system expenditure (table 11.12).

### Morbidity

Results from the 2007–08 NHS indicate that 818,200 Australians or around 4% reported having diabetes as a long-term condition. Results from the three successive surveys show diabetes is a growing health problem in Australia. The prevalence of diabetes has risen from 3.0% in 2001, to 3.5% in 2004–05 and 4.0% in 2007–08.

## **Mortality**

In 2007, diabetes mellitus was the underlying cause of death in 3,810 deaths, 2.8% of all deaths registered. Of these, 1,923 deaths were males and 1,887 females. The highest number of deaths resulting from diabetes over the past ten years was recorded in 2007, with the proportion of all deaths represented by this cause increasing from 2.3% in 1998 to 2.8% in 2007.

In addition to deaths where diabetes was the underlying cause, there were a further 9,291 deaths in 2007 where diabetes was listed as an associated (or contributing) cause of death. Where diabetes was recorded as the underlying cause of death, other conditions listed as associated causes included ischaemic heart disease (51%) and hypertensive diseases (32%).

## **Asthma**

Asthma is a chronic inflammatory disorder of the lung's air passages which makes them narrow in response to various triggers. This leads to episodes of shortness of breath and wheezing. Asthma can begin at all ages, including the very young. The disease can start as a mild chronic cough and lead to mild or severe wheezing, and sometimes even to respiratory arrest.

Although asthma has low associated mortality, people with asthma can experience reduced quality of life and require a range of health services, from general practitioner care to emergency department visits or hospital in-patient care. It is one of the most frequent reasons for hospitalisation among children aged 0–9 years.

The management of asthma is an important public health issue because of the personal burden it places on those with asthma, often with onset in childhood, and the financial burden it places on the health system. Of respondents with long-term asthma in 2007–08, 22% had a day away from work, school or study and 9% visited a hospital or emergency department in the 12 months prior to interview.

## **Morbidity**

The prevalence of asthma in Australia is one of the highest in the world, with more than two million Australians (10%) reporting the disease in 2007–08. Asthma is more prevalent in young people than older age groups. For people under 25 years of age, the prevalence of asthma was 11%. Up to 14 years of age, asthma was more common among males, however asthma was more prevalent among females in all age groups 15 years and over.

## Mental Health

An individual's ability to relate with their family, friends, work-mates and the broader community is affected by their mental health. People suffering from a mental disorder can experience significant distress and disability.

The annual cost of mental illness in Australia has been estimated at \$20 billion, which includes the cost of lost productivity and labour force participation. In 2003, mental disorders were identified as the leading cause of healthy years of life lost due to disability.

This article focuses on people aged 16–85 years who had experienced mental illness or substance use disorder in the 12 months prior to being surveyed in 2007.

### Definitions

Unless otherwise stated, the information in this article relates to people aged 16–85 years and is based on the International Classification of Diseases and Related Health Problems (ICD–10). Some ICD–10 disorder criteria have a 'diagnostic exclusion rule', so that one disorder takes precedence over another. This means that if, for example, a person's symptoms of anxiety are due to the presence of post-traumatic stress disorder, that person will not also be diagnosed with generalised anxiety disorder.

All prevalence data presented (including comorbidity data) are subject to diagnostic exclusion rules. While this article often separates the discussion of mental disorders by type, some of the people interviewed had more than one mental disorder which may add to the effects and/or severity they experience.

### Data source

Most of the information in this article comes from the 2007 National Survey of Mental Health and Wellbeing (SMHWB). Measuring the prevalence of mental disorders in the community is a complex task, as such disorders are usually determined through clinical diagnosis. The SMHWB only covered those disorders which could be identified using an interview-based household survey. A modified version of the Composite International Diagnostic Interview was used to diagnose disorders.

The SMHWB was also conducted in 1997 but there were differences in the application of the diagnostic criteria in 1997 compared with 2007, so the results are not comparable and 1997 data are not shown in this article.

## Prevalence

In 2007, 45% of Australians aged 16–85 years, (or 7.3 million people), had at some point in their lifetime experienced a mental disorder. In the 12 months prior to the survey women were more likely than men to have had symptoms of mental illness. A higher rate of anxiety disorders among women was the main contributor to this difference (graph 11.17).

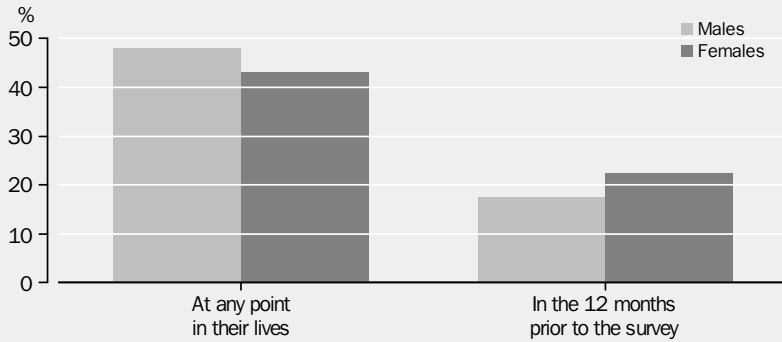
### Anxiety disorders

Anxiety disorders generally involve feelings of tension, distress or nervousness. In 2007, anxiety disorders were the most common class of mental disorders, affecting 14% of all people aged 16–85 years in the 12 months prior to the survey. Women were more likely to have experienced anxiety disorders than men, 18% to 11% (graph 11.18). Anxiety disorders were most common in women aged 16–54 years, (21%), compared with women aged 65–85 years (6.3%).

### Affective disorders

Affective or mood disorders involve mood disturbance or change in affect. Depression and dysthymia may involve signs such as a depressed mood, loss of self-confidence and esteem and reduced energy or activity over a period of at least two weeks. Bipolar disorder involves episodes of mania either alone or together with depressive episodes. Manic episodes may be characterised by less need for sleep, increased activity or restlessness and reckless behaviour. Affective disorders affected 6.2% of people aged 16–85 years, 7.1% of women and 5.3% of men. The rate was higher for those aged 16–44 years (7.6%) than for those aged 55–85 years (3.3%) (graph 11.18).

**11.17 PROPORTION OF PEOPLE AGED 16–85 WITH A MENTAL DISORDER(a) 2007**



Note: (a) Selected mood, anxiety and substance use disorders.  
 Source: ABS data available on request, 2007 National Survey of Mental Health and Wellbeing.

**Substance use disorders**

Substance use disorders, involving harmful use of, or dependency on, alcohol or other drugs were slightly less prevalent than other types of mental disorders, affecting 5.1% of people aged 16–85 years. Substance use disorders were more common in men than in women and most prevalent in men aged 16–24 years (13%) (graph 11.18).

disorders. The impairment is categorised into three levels: severe, moderate and mild. Higher levels of severity may be associated with a range of factors, in particular, affective disorders and comorbidity. Of all people with a mental disorder in 2007, just over one-fifth (21%) had a severe disorder, one-third (33%) had a moderate disorder and just under half (46%) had a mild disorder.

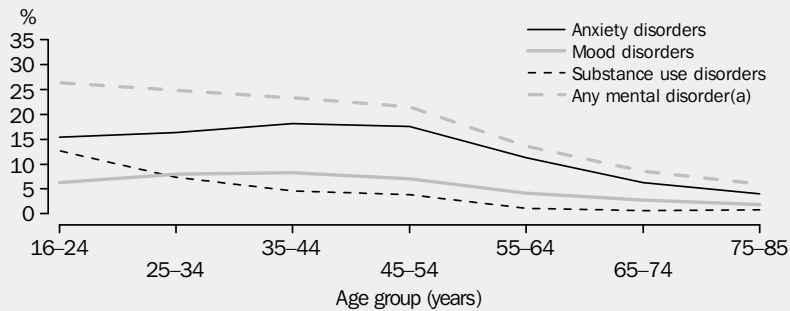
**Severity**

A range of criteria, such as suicide attempts, substance dependence and interference in various areas of a person's life, are combined to obtain a measure of the overall level of impairment experienced by people with mental

**Comorbidity**

People with a mental illness may have more than one disorder at any one time. This is known as comorbidity. The disorders may or may not be from the same group of mental health disorders. Having multiple mental disorders is associated

**11.18 PROPORTION OF PEOPLE WITH A MENTAL DISORDER IN THE PREVIOUS 12 MONTHS – 2007**



Notes: (a) People may have had more than one disorder so components do not add to any mental disorder total.

Source: National Survey of Mental Health and Wellbeing: Summary of Results, 2007 (4326.0).

**11.19 PEOPLE WITH MENTAL DISORDERS(a), By health services used for mental health problems(b)—2007**

	General practitioner	Psychologist	Other(c)	Total who used services for mental health problems	People who had a need not fully met
	%	%	%	%	%
Sex					
Male	18.0	13.1	15.1	27.5	25.2
Female	29.9	13.2	19.9	40.7	28.9
Age group (years)					
16–34	20.3	11.8	14.7	28.6	26.2
35–54	27.7	16.2	21.0	40.5	30.3
55–85	28.9	8.7	17.6	37.3	22.1
Geography					
Major Cities of Australia	25.5	15.5	18.6	36.9	29.4
Other areas of Australia	22.9	8.3	16.0	30.8	22.7
Mental disorders					
Mood disorder only	41.9	*21.0	23.0	49.7	33.5
Anxiety disorder only	12.2	6.5	10.4	22.0	15.8
Substance-use disorder only	*6.9	**4.5	*5.6	*11.1	7.2
One mental disorder only	15.8	8.4	11.3	24.0	16.7
Two or more mental disorders	39.3	21.0	28.3	52.7	44.6
<b>Total aged 16–85 years</b>	<b>24.7</b>	<b>13.2</b>	<b>17.8</b>	<b>34.9</b>	<b>27.3</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) People aged 16–85 years with mental disorders within the previous 12 months

(b) Health services used within the previous 12 months. Includes consultations with: psychiatrist, mental health nurse, social worker, counsellor, medical specialist, and complementary/alternative therapist

(c) Other health professional includes: medical specialists, other professionals providing general services and complementary and alternative therapists.

Source: ABS data available on request, National Survey of Mental Health and Wellbeing.

with greater impairment, higher risk of suicidal behaviour and greater use of health services.

In 2007, 1.4 million or 38% of people with a disorder had two or more 12-month mental disorders. A mix of affective and anxiety disorders was the most common combination.

## Work

Employment provides income as well as an opportunity for social engagement and improved self-esteem. In 2007, unemployment was higher for those with a mental illness (4.0%) than those without (2.7%). The employment to population ratio was lower for people with a mental illness (69%) than those without (76%). The gap was greater for women than men (8 percentage points compared with 3 percentage points).

## Mental health service use

Recent decades have seen less use of residential mental institutions and increased use of community mental health services. People with a mental illness may use a variety of services to help improve their ability to work or care for themselves.

In 2007, nearly two-thirds (65%) of people with a mental disorder had not used services for their mental health problems in the 12 months before the survey. Most of those people who did not access any services reported that they had no need for any type of assistance.

People aged 16–34 years were less likely to have used services for their mental health problems (29%) than people aged 35–54 (41%) or 55–85 years (37%) (table 11.19). The most common group of disorders for young people was substance use disorders (often related to

alcohol). These were more likely to be mild disorders and may have therefore contributed to the lower rate of service use. Women (41%) were more likely than men (28%) to have used services for mental health problems. This is consistent with higher usage of health services by women in general.

Of people with an affective disorder, 50% reported using services for mental health problems, compared with less than a quarter of people with an anxiety disorder or 11% of those with a substance use disorder. This may be related to the differing severity levels of these types of disorders, since over half of those people with an affective disorder were rated as severe.

The most common service used was visiting a GP (25%), followed by seeing a psychologist (13%) (table 11.19). GP consultation was the most common service used by both sexes, across all ages, types of mental disorders and across geographical areas.

Men and women with mental disorders were equally likely to use the services of a psychologist for mental health problems however people from major cities were almost twice as likely to have used a psychologist (15%) compared with those from other areas (8%). This may be related to less access to such services outside major cities.

In 2007, there were about 872,000 people who had a mental health disorder and felt they had an unmet need for assistance. The most common type of perceived unmet need was for counselling (16%), followed by information (14%) and social intervention (12%).

### **Mental health services in Australia**

In the four years to 2007–08, expenditure on state and territory mental health services as a whole increased by an average of 5.6% per year, to \$3.0 billion.

The introduction of Medicare Benefits Schedule (MBS) allied health items for people with chronic conditions and complex care needs in July 2004, followed by the introduction of the MBS items provided by psychologists, occupational therapists and social workers from November 2006, resulted in the overall number of services subsidised by Medicare for both psychiatrists and allied health professionals to almost double to nearly 4 million in 2007–08, from just over 2

million services per annum in the three years prior to 2006–07.

The number of visits to GPs for mental health reasons increased by an average of 4.4% per year in the four years to 2007–08, to an estimated 11.9 million encounters that year.

Geographic differences were also evident in the MBS subsidised mental health services provided by psychiatrists and allied health professionals (psychologists, social workers and occupational therapists) in 2007–08. The age standardised rate per 1,000 mental health services per person was 12.3 in Major cities, 2.9 services per 1,000 people in Remote areas and 1.6 services per 1,000 people in Very remote areas.

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## Communicable Diseases

Communicable diseases are capable of being transmitted from one person to another, or from one species to another. Two major groups of communicable diseases, classified in the ICD-10, are certain infectious and parasitic diseases (ICD-10 codes A00–B99) and acute respiratory infections (ICD-10 codes J00–J22) which includes influenza and pneumonia as well as other acute upper and lower respiratory infections. In 2007, these two groups accounted for 3.4% of all deaths in Australia (4,641 deaths). Influenza and pneumonia accounted for 57% (2,623) of these deaths. Death rates increased with age, and were greater for males than females in most age groups. In 2007–08, there were 91,273 hospital separations in Australia with a principal diagnosis of infectious and parasitic diseases.

Through the National Notifiable Diseases Surveillance System (NNDSS), state and territory health authorities submit reports of more than 60 communicable disease notifications for compilation by the Department of Health and Ageing.

The total of notifications to NNDSS in 2008 was 160,498, an increase of 9.1% on the 147,555 notifications made in 2007 (table 11.20). In 2008, sexually transmitted infections (STI) were the most commonly reported communicable diseases, accounting for 43% of all notifications, followed by vaccine preventable diseases (21%) and gastrointestinal diseases (17%).

Chlamydia was the most common STI (58,515 notifications, 84% of total STIs); campylobacteriosis the most common gastroenteritis (15,533 notifications, 57% of total) and hepatitis C (unspecified) was the most common blood-borne disease (10,932 notifications, 60% of total).

### HIV and AIDS

In collaboration with the state and territory health authorities and the Australian Government, surveillance for human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) is conducted by the National Centre in HIV Epidemiology and Clinical Research. This centre is part of the Faculty of Medicine, University of

New South Wales and is funded primarily by the Department of Health and Ageing (DoHA).

At 31 December 2008, the cumulative number of cases of newly diagnosed HIV infections since 1985 was 28,330 (table 11.21). The average number of new HIV cases diagnoses from 2004–2008 was 984 per year.

Transmission of HIV in Australia continues to be mainly through sexual contact between men, 66% in 2008, however, the rate of exposure through heterosexual contact has risen from 19.3% in 2005 to 27.1% in 2008 (table 11.22).

According to the National Centre in HIV Epidemiology and Clinical Research, the per capita rate of HIV and AIDS diagnosis in Australia from 2003–2007 was at least five times higher among people born in countries in sub-Saharan Africa than among Australian born people. In the past five years, 60% of cases of HIV infection attributed to heterosexual contact were in people from high HIV prevalence countries or their sexual partners.

### Children's immunisation

Immunisation programs for children are recognised as an effective public health intervention, and have been responsible for eradicating or minimising infectious diseases such as diphtheria, whooping cough and polio as major causes of death and disability in Australia.

The Australian Childhood Immunisation Register (ACIR), which commenced operation on 1 January 1996, aims to provide accurate and comprehensive information about immunisation coverage for all children under the age of seven. The register is administered by Medicare Australia and is a key component of initiatives to improve the immunisation status of Australian children.

Immunisation coverage goals for Australia for the year 2000, recommended by the NHMRC, called for 90% or more coverage of children at two years of age, and near universal coverage of children at school-entry age, against diphtheria, tetanus, pertussis (whooping cough), poliomyelitis, measles, mumps, rubella and Hib (Haemophilus influenzae type b).

ACIR data indicated, at 31 December 2008, 92% of one year olds, 93% of two year olds (see graph



11.23) and 89% of six year olds were fully immunised according to the NHMRC

Recommended Australian Standard Vaccination Schedule.

### 11.20 NATIONAL NOTIFIABLE DISEASE SURVEILLANCE SYSTEM (NNDSS) REPORTS

Disease (a)	NOTIFICATIONS		RATE(b)	
	2007	2008	2007	2008
Bloodborne diseases				
Hepatitis B (incident)	294	245	1	1
Hepatitis B (unspecified)	6 883	6 591	33	31
Hepatitis C (incident)	384	385	2	2
Hepatitis C (unspecified)	11 906	10 932	57	51
Hepatitis D	34	43	—	—
Hepatitis (NEC)	—	1	—	—
Gastrointestinal diseases				
Botulism	1	—	—	—
Campylobacteriosis	16 997	15 533	120	108
Cryptosporidiosis	2 812	2 005	13	9
Haemolytic uraemic syndrome (HUS)	19	31	—	—
Hepatitis A	165	277	1	1
Hepatitis E	18	44	—	—
Listeriosis	50	68	—	—
STEC, VTEC(c)	106	107	1	1
Salmonellosis	9 534	8 313	45	39
Shigellosis	602	829	3	4
Typhoid	90	105	—	1
Other bacterial infections				
Legionellosis	306	273	2	1
Leprosy	13	11	—	—
Meningococcal disease (invasive)	306	285	2	1
Tuberculosis	1 174	1 225	6	6
Quarantinable diseases				
Cholera	4	4	—	—
Plague	—	—	—	—
Rabies	—	—	—	—
Smallpox	—	—	—	—
Viral haemorrhagic fever (NEC)	—	—	—	—
Yellow fever	—	—	—	—
Sexually transmissible infections				
Chlamydial infection	52 043	58 515	248	274
Donovanosis	3	2	—	—
Gonococcal infection	7 677	7 675	37	36
Syphilis	—	—	—	—
Syphilis - congenital	7	7	—	—
Syphilis < 2 years duration	1 422	1 298	7	6
Syphilis > 2 years or unspecified duration	1 740	1 940	8	9
Vaccine preventable diseases				
Diphtheria	—	—	—	—
Haemophilus influenzae type b	17	25	—	—
Influenza (laboratory confirmed)	10 448	9 136	50	43
Measles	12	65	—	—
Mumps	586	286	3	1
Pertussis	5 347	14 524	25	68
Pneumococcal disease (invasive)	1 483	1 629	7	8

— nil or rounded to zero (including null cells)

(a) Diseases reported to NNDSS from all jurisdictions except incident Hepatitis C not reported from QLD; campylobacteriosis not reported from NSW.

(b) Rate per 100,000 population is calculated using the ERP at the midpoint of 2007–08.

(c) SLTEC/VTEC: Shiga-like toxin producing E.coli infections.  
Source: Commonwealth Department of Health and Ageing, National Notifiable Disease Surveillance System.

**11.20 NATIONAL NOTIFIABLE DISEASE SURVEILLANCE SYSTEM (NNDSS) REPORTS** *continued*

<i>Disease (a)</i>	NOTIFICATIONS		RATE(b)	
	2007	2008	2007	2008
Poliomyelitis	1	—	—	—
Rubella	34	37	—	—
Rubella Congenital	2	—	—	—
Tetanus	3	4	—	—
Varicella zoster (Chickenpox)	1 668	1 790	8	8
Varicella zoster (Shingles)	1 561	2 313	7	11
Varicella zoster (Unspecified)	4 287	4 426	20	21
Vectorborne diseases				
Arbovirus infection (NEC)	22	28	—	—
Barmah Forest virus infection	1 716	2 101	8	10
Chikungunya virus infection	—	9	—	—
Dengue virus infection	314	559	2	3
Japanese encephalitis virus infection	—	1	—	—
Kunjin virus infection	1	1	—	—
Malaria	568	532	3	3
Murray Valley encephalitis virus infection	—	2	—	—
Ross River virus infection	4 207	5 651	20	26
Zoonoses				
Anthrax	1	—	—	—
Australian bat lyssavirus	—	—	—	—
Brucellosis	38	47	—	—
Leptospirosis	108	112	1	1
Lyssavirus (NEC)	—	—	—	—
Ornithosis	93	103	—	1
Q fever	448	373	2	2
Tularaemia	—	—	—	—
<b>Total</b>	<b>147 555</b>	<b>160 498</b>	<b>702</b>	<b>751</b>

— nil or rounded to zero (including null cells)  
 (a) Diseases reported to NNDSS from all jurisdictions except incident Hepatitis C not reported from QLD; campylobacteriosis not reported from NSW.

(b) Rate per 100,000 population is calculated using the ERP at the midpoint of 2007–08.  
 Source: Commonwealth Department of Health and Ageing, National Notifiable Disease Surveillance System.

**11.21 NEWLY DIAGNOSED HIV CASES(a), AIDS cases and deaths following AIDS(b)(c)**

	2004	2005	2006	2007	2008	Total(d)
HIV cases(a)	911	962	1 007	1 046	995	28 330
AIDS cases(b)	202	232	221	161	99	10 348
AIDS deaths	91	69	83	53	24	6 765

(a) Not adjusted for multiple reporting. Cumulative to 31 December 2008.

(b) Number of AIDS cases diagnosed in NSW in 2008 are not available and not included in Totals.

(c) The number of HIV/AIDS diagnoses for each year may be revised over time due to late reports, updated information on exposure and testing history for reported cases, and removal of previously unrecognised duplicate diagnoses.

(d) Includes all cases reported prior to 2004

Source: HIV/AIDS, viral hepatitis and sexually transmissible infections in Australia Annual Surveillance Report 2009<sup>1</sup>, National Centre in HIV Epidemiology and Clinical Research, University of New South Wales; Australian Institute of Health and Welfare.

**11.22 CHARACTERISTICS OF CASES OF NEWLY DIAGNOSED HIV INFECTION(a), Number of cases and proportion of total cases**

		YEAR OF DIAGNOSES (a)					Total(b)
		2004	2005	2006	2007	2008	
Total cases	no.	911.0	962.0	1 007.0	1 046.0	995.0	28 330
Males	%	86.0	90.2	85.3	87.0	86.3	91.3
State and territory							
New South Wales	%	45.1	42.2	39.1	39.7	36.6	54.3
Victoria	%	23.6	26.7	28.4	27.3	28.6	22.0
Queensland	%	17.2	17.6	16.4	18.7	20.2	12.0
South Australia	%	5.9	5.3	6.1	5.4	4.7	4.0
Western Australia	%	5.5	6.6	7.6	7.2	7.6	5.6
Tasmania	%	1.0	0.6	0.7	0.5	0.4	0.4
Northern Territory	%	0.9	0.3	1.1	0.5	1.1	0.6
Australian Capital Territory	%	0.8	0.7	0.6	0.9	0.7	1.1
Exposure category(c)							
Male homosexual contact	%	67.5	72.3	67.6	68.4	66.0	75.7
Male homosexual contact and injecting drug use	%	4.0	4.3	3.9	2.8	3.2	4.3
Injecting drug use(d)	%	4.4	3.4	2.8	2.9	3.1	4.0
Heterosexual contact	%	23.8	19.3	25.0	24.9	27.1	13.5
Haemophilia/coagulation disorder	%	—	—	—	—	—	1.2
Receipt of blood/tissue	%	0.1	0.1	—	—	0.1	1.0
Mother with/at risk of HIV infection	%	0.1	0.6	0.6	0.9	0.6	0.4
Health care setting	%	0.1	—	—	—	—	—
Other/undetermined	%	6.9	8.5	6.8	6.4	4.8	13.9

— nil or rounded to zero (including null cells)

(a) The number of HIV/AIDS diagnoses for each year may be revised over time due to late reports, updated information on exposure and testing history for reported cases, and removal of previously unrecognised duplicate diagnoses.

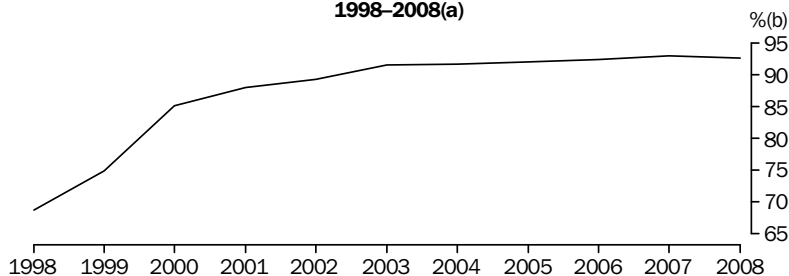
(b) Includes all reported cases prior to 2004. Not adjusted for multiple reporting.

(c) The 'Other/undetermined' category was excluded from the calculation of the percentage of cases attributed to each HIV exposure category.

(d) Excludes males who also reported a history of homosexual/bisexual contact.

Source: 'HIV and AIDS, viral hepatitis and sexually transmissible infections in Australia Annual Surveillance Report 2009', National Centre in HIV Epidemiology and Clinical Research, University of New South Wales; Australian Institute of Health and Welfare.

**11.23 PROPORTION OF CHILDREN AGED 24–27 MONTHS FULLY IMMUNISED, 1998–2008(a)**



Notes: (a) Proportion of children immunised, year ending December.

(b) % fully immunised = No. children vaccinated/No. children in register x 100. Only vaccine administered before 24 months are included in the coverage calculation

Source: Medicare Australia, Australian Childhood Immunisation Register (ACIR) statistical information.

## Health care delivery and financing

*This section draws extensively on material provided by the Australian Government Department of Health and Ageing (November 2009).*

### National health care system

Australia's health care system is funded and administered by several levels of government (national, state/territory and local) and is supported by private health insurance arrangements. Australia's national public health insurance scheme, Medicare, is funded and administered by the Australian Government and consists of three health care components: medical services (including visits to general practitioners (GPs) and other medical practitioners), prescription pharmaceuticals and hospital treatment as a public patient (the latter is jointly funded by the Australian and state/territory governments).

The Australian and state/territory governments fund and deliver a range of other health services including population health programs, community health services, health and medical research, Indigenous health, mental health, health workforce and health infrastructure.

The Australian Government is primarily responsible for health service funding, regulation of health products, services and workforce, and national health policy leadership. The states and territories are primarily responsible for the delivery and management of public health services (including public hospitals, community health and public dental care) and the regulation of health care providers and private health facilities. Local governments fund and deliver some health services such as environmental health programs.

This public system is supported by optional private health insurance (and injury compensation insurance) for hospital treatment as a private patient and for ancillary health services (such as physiotherapy and dental services) provided outside the hospital.

Most medical and allied health practitioners are employed in private practice. A small number of doctors and allied health professionals are

salaried employees of the various tiers of government.

### Role of the Australian Government

The Australian Government has national responsibility for the following major health funding mechanisms:

- Medicare Benefits Schedule (MBS) component of Medicare: provides rebates to private patients for medical services provided by privately practising doctors, optometrists and other allied health practitioners
- Pharmaceutical Benefits Scheme (PBS) component of Medicare: provides rebates to private patients for a wide range of prescription pharmaceuticals
- National Healthcare Agreement. The Agreement includes the public hospital component of Medicare which provides grants to state and territory governments for the provision of free hospital treatment as a public patient (and also includes funding to state/territory governments for some population health programs)
- National Partnership Agreements: grants to state/territory governments for Hospital and Health Workforce Reform (including public hospital emergency departments), Preventative Health, Closing the Gap in Indigenous Health Outcomes (joint funding by the Commonwealth, States and Territories), Health Infrastructure, and Health Services for a range of population health programs such as immunisation, cancer screening, drug abuse reduction and health promotion
- rebates for private health insurance premiums subsidise access to a range of ancillary health services and treatment as a private patient in hospital
- grants and payments to government and non-government health service providers for a range of health services (e.g. radiation oncology, pathology and primary care medical services) to improve service access for specific population groups, to influence the growth and distribution of health services, and to improve the quality of service and health outcomes

- health services for war and defence service veterans are provided under a number of schemes administered through the Department of Veterans' Affairs including the Local Medical Officer Scheme, the Repatriation Pharmaceutical Benefits Scheme, and the Repatriation Private Patients Scheme (for treatment as a private patient in hospital).

## Medicare

Medicare is Australia's universal, tax-financed, public health insurance scheme, covering medical, pharmaceutical and public hospital services. Introduced in 1984, Medicare's objectives are to make health care accessible and affordable to all Australians, and to provide a high quality of care.

### Medicare Benefits Schedule (MBS)

Medicare benefits provide financial assistance to people who incur medical expenses for selected professional services rendered by medical practitioners, participating optometrists, practice nurses, dentists and other allied health professionals. Medicare benefits are based on a schedule of fees.

Practitioners are not required to adhere to the Schedule fee, except for optometry, which is a participating scheme under which practitioners sign an undertaking to charge no more than the Schedule fee for the services they perform.

Where practitioners bulk bill Medicare Australia, they receive the Medicare rebate, and they cannot levy additional charges on the patient.

Medicare benefits do not cover services to public patients in public or private hospitals, services provided under Veterans' Affairs arrangements, some compensation cases, and some services provided under other publicly funded programs.

For private hospital treatment or 'hospital substitute treatment' covered by private health insurance, the Medicare benefit is 75% of the Schedule fee. Amounts paid in excess of the rebate may be claimed under private health insurance arrangements.

For non-hospital services, from 1 January 2005, the Medicare benefit was 100% of the Schedule fee for out-of-hospital non-referred (GP) attendances, including practice nurse items, and

for all other out-of-hospital services, 85% of the Schedule fee or the Schedule fee less the maximum gap (\$68.10 from 1 November 2008, indexed annually), depending on which is greater.

With effect from 1 February 2004, additional benefits were paid to GPs as an incentive for bulk billing. The \$7.85 incentive applies to bulk-billed services provided by GPs to persons under 16 years of age or concession card holders, to persons in Tasmania or in specified rural and remote areas. With effect from 1 September 2004, the incentive applies to a number of other geographical areas. The \$5.15 incentive applies to bulk-billed services provided by GPs to persons under 16 years of age or to concession card holders.

A number of 'safety net' arrangements apply for patient-billed services provided out-of-hospital. Under the original Medicare Safety Net, when gap payments (the difference between the MBS Schedule fee and the Medicare rebate) exceeded \$383.90 for an individual or family in 2009, Medicare benefits increased to up to 100% of the Schedule fee for the remainder of the calendar year. Under the Extended Medicare Safety Net, for Commonwealth concession card holders and families who receive Family Tax Benefit Part A, once out-of-pocket costs (total fee charged less benefit paid) exceeded \$555.70 in 2009, Medicare covered 80% of the out-of-pocket costs for the remainder of the year. For other singles and families, Medicare covered 80% of the out-of-pocket costs, once those costs exceeded \$1,111.60 in 2009.

### Medicare levy

When Medicare began in 1984, a levy was introduced as a supplement to other taxation revenue to enable the Australian Government to meet the additional costs of the universal national health care system, which were greater than the costs of the more restricted public health insurance systems that preceded it.

The Medicare levy is 1.5% of an individual's taxable income (except where an individual is exempt or pays a reduced levy because of low income). Individuals and families on higher incomes who do not have an appropriate level of private hospital cover may also have to pay a Medicare levy surcharge, which is an additional

## 11.24 MEDICARE SERVICES PROVIDED AND BENEFITS PAID

	SERVICES (a)		BENEFITS (b)(c)	
	Total	Per	Total	Per
		person		person
	mill.	no.	\$m	\$
2001–02	220.7	10.9	7 829.5	387.00
2002–03	221.4	10.8	8 115.5	395.60
2003–04	226.4	10.9	8 600.0	413.00
2004–05	236.3	11.3	9 922.9	474.70
2005–06	247.4	12.0	10 976.3	532.80
2006–07	257.9	12.3	11 735.6	560.60
2007–08	278.7	13.1	13 006.5	612.40
2008–09	294.0	13.6	14 321.9	664.30

(a) Increases in services over time reflect structural changes to the Medicare Benefits Schedule, changes in service provision (services previously provided by state and territory governments under grant arrangements now covered by Medicare), population growth, ageing, etc.

(b) Nominal.

(c) In current prices.

Source: Medicare Australia Data; Commonwealth Department of Health and Ageing.

1% of taxable income. In 2007–08, taxation revenue from the Medicare Levy (including the Medicare Levy Surcharge) was \$8.0 billion.

In 2008–09, Medicare Australia paid benefits of \$14.3 billion, or \$664.30 per person for 294 million items of services, 13.6 services per person (table 11.24).

### Pharmaceutical Benefits Scheme (PBS)

The Australian Government provides Medicare-eligible people with affordable access to a wide range of necessary and cost-effective prescription medicines through the PBS. The following details relate to charges and 'safety net' levels applying at 1 January 2009.

Medicare-eligible patients who do not hold a Health Care Card, Pensioner Concession Card or Commonwealth Seniors Health Card, are required to pay up to the first \$32.90 for each prescription item for medicines listed on the PBS. Concessional patients who hold a concession card must pay \$5.30 per prescription item.

Under private health insurance, health insurers may offer policies that cover the above costs of the prescription items as part of an episode of hospital treatment or an episode of hospital substitute treatment.

Individuals and families are protected from large overall expenses for PBS-listed medicines by safety nets. For general patients (non-cardholders), once the eligible expenditure of a person and/or their immediate family exceeds \$1,264.90 within a calendar year, the additional payments the patient has to make per item (co-payment) usually decreases from \$32.90 to the concessional co-payment rate of \$5.30.

For concessional and pensioner patients (cardholders), once their total eligible expenditure exceeds \$318 within a calendar year, usually any further prescriptions are free for the remainder of that year.

Patients may pay more than the relevant co-payment in certain circumstances. A special patient contribution is payable for a pharmaceutical benefit where there is a disagreement between the manufacturer and the Government over the dispensed price for that benefit item. This extra charge is paid by all patients, together with their usual patient contribution.

- In the case of brand premiums, the Government subsidises on the basis of the lowest priced drug, and any difference in price due to a brand premium must be met by the patient. The premium cannot be counted towards the patient's safety net. There is always one brand of a drug available on the PBS that does not have a brand premium.
- Under the therapeutic group premium arrangements, the Government reimbursement to pharmacists is based on the lowest priced benefit items within identified therapeutic groups. Patients pay the difference for higher priced items. Exemptions on medical grounds are available.
- For other special patient contributions, although some medicines in reference pricing groups deliver similar health outcomes, they may not be interchangeable for patients. Unlike products with brand and therapeutic group premiums, patients may not be able to avoid the additional costs by taking another medicine. Where the prescribing doctor believes that there is no clinically appropriate alternative, the Government will pay the special patient contribution on behalf of the patient for most of the drugs with these patient paid charges.

## 11.25 PHARMACEUTICAL BENEFITS SCHEME, SUBSIDISED PRESCRIPTIONS(a)

<i>Financial Year</i>	<i>Government cost(b)</i> \$m	<i>Script volume(c)</i> million	<i>Average Government cost per script(c)</i> \$	<i>Subsidised prescriptions per capita(c)</i> no.
2003–04	5 104.5	165.1	32.34	8.2
2004–05	5 459.1	169.6	31.06	8.3
2005–06	5 587.1	167.6	29.99	8.0
2006–07	5 742.2	182.1	31.71	8.6
2007–08	6 237.5	170.5	27.33	8.0
2008–09	6 916.9	181.0	26.16	8.3

(a) In current prices.

(b) PBS Government cost is reported on an accrual accounting basis. Categories included are expenditure for Section 85 drugs (Concessional and General), Emergency (Doctor's Bag) Drugs, Highly Specialised Drugs, Section 100 drugs and issue costs of Safety Net cards.

(c) All other information is sourced from the relevant Pharmaceutical Benefits Branch publications Expenditure and prescriptions twelve months to...' and is reported on a cash basis. The data only relate to concessional, General and Doctor's Bag categories.

Note: Payments for IVF Centre Hormones, Human Growth Hormones, Aboriginal Health Services, and prescription medicines subsidised by the Government under the Repatriation Pharmaceutical Benefits Schemewhich is administered by the Department of Veterans' Affairs, are totally excluded.

Source: Medicare Australia Data; Commonwealth Department of Health and Ageing.

In the 2008–09 financial year, the PBS processed 181 million benefit prescriptions, representing a cost to the Australian Government of \$6.9 billion (table 11.25). The number of PBS subsidised prescriptions per person in the 2008–09 financial year was 8.3, compared with 8.0 in 2007–08.

### Public hospitals

Australia's public hospital system, which provides the majority of acute-care beds, provides free access to hospital care for public patients. It is

jointly funded by the Australian Government and state/territory governments (and can also receive revenue from services to private patients). Public hospitals are run by state and territory governments. Australian Government funding to the states and territories for public hospitals is made through the National Healthcare Agreement between the Australian Government and the states and territories.

In 2006–07 there were 758 public hospitals nationally (table 11.26), compared with 761 in

## 11.26 PUBLIC AND PRIVATE HOSPITALS(a)—2006–07

	<i>Public(a)</i>	<i>Private(b)</i>	<i>Total</i>
Bed supply			
Facilities	no.	758	557
Beds/chairs (annual average)	no.	55 905	26 678.0
Activity			
Total separations	'000	4 661	3 051
Same-day separations	'000	2 333	1 909
Total patient days	'000	17 439	7 669
Average length of stay	days	3.7	2.5
Average length of stay excluding all same-day separations	days	6.5	5.4
Staff(c)	'000	235	47
Non-admitted patient occasions of service	'000	46 141	1 734
Revenue(d)	\$m	2 325	7 539
Recurrent expenditure(e)	\$m	26 290	6 582

(a) Acute and psychiatric hospitals.

(b) Acute and psychiatric hospitals and free-standing day hospital facilities.

(c) Full-time equivalent.

(d) Current price. Refers to amounts as reported, unadjusted for inflation.

(e) Current price terms not adjusted for inflation.

Source: Private Hospitals, Australia, 2006–07 (4390.0); Australian Institute of Health and Welfare, 'Australian Hospital Statistics 2006–07'.

2003–04. There was an average of 56,000 beds in public hospitals during 2006–07, representing 68% of all public and private hospital beds. The number of available beds ranged from 3.3 per 1,000 population in the Northern Territory to 4.7 per 1,000 population in Tasmania in 2006–07.

The number of patient separations (discharges, deaths, and transfers) from public hospitals during 2006–07 was 4.7 million compared with 4.2 million in 2003–04.

The average length of hospital stay per patient in 2006–07 was 3.7 days compared with 3.8 days in 2005–06 and 4.1 days in 2001–02, reflecting a steady increase in same day patients up to 2006–07. If same-day patients are excluded, the 2006–07 average length of stay was 6.5 days compared with 6.6 days in 2005–06 and 6.9 days in 2001–02.

### **Role of the private health sector in Australia's health system**

The private health sector (including both the for-profit and not-for-profit sectors) plays a significant role in delivering and funding health services in Australia. Most medical and allied health practitioners are in private practice (self-employed, in small practices or large corporate practices) and charge a fee for service. Private hospitals provide a third of all hospital beds, almost 40% of total hospital separations and over half of all surgical episodes requiring the use of an operating room. Most prescribed pharmaceuticals are dispensed by private sector pharmacies. Most high-level residential aged-care beds are provided in private aged-care facilities. Private health insurers provide rebates for ancillary health services (such as physiotherapy and dental services) and hospital treatment as a private patient. Injury compensation insurers providing workers' compensation and third-party motor vehicle insurance also fund some health care. Individuals fund health care through out-of-pocket expenses, net of government and private health insurance rebates.

The private health sector funds around a third of all health care in Australia, with out-of-pocket expenditure the major component, funding 19% of total health expenditure.

### **Private hospitals**

There were 557 private hospitals in operation in 2006–07, comprising 289 private and acute hospitals and 268 free-standing day hospital facilities. The number of acute and psychiatric hospitals has decreased since 2001–02 when 301 of these hospitals were in operation. In contrast, the number of day hospital facilities has grown steadily for several years, with 236 in operation in 2001–02.

For private acute and psychiatric hospitals during 2006–07, the average number of beds available was 26,678, 2% higher than the previous year. There was an increase in the average number of beds available in the capital cities by 410 beds, and a decrease in regional Australia by 96 beds. The average change in the number of beds or chairs available at free-standing day hospital facilities (used mainly for short post-operative recovery periods) increased by 6.5% in the 12 months up to 2006–07.

Private hospital separations in 2006–07 totalled more than 3 million, of which 79% were from private acute and psychiatric hospitals and 21% from free-standing day hospital facilities. Same-day separations accounted for 63% of all private hospital separations (compared with 50% of public hospital separations). This higher proportion of same-day separations contributed to the lower average length of stay in private hospitals (2.5 days) compared with public hospitals (3.7 days) (table 11.26).

The average number of full-time equivalent staff employed at all private hospitals was 46,718 of whom 60% were nursing staff. Recurrent expenditure for private acute and psychiatric hospitals during 2006–07 amounted to \$6.6 billion (a 1.3% increase over the previous year). Some 52% of this amount was spent on salaries and wages (including on-costs). Revenue received during the year was \$7.5 billion, of which 96% was received as payments from patients. Over the five years to 2006–07, the average annual increase in recurrent expenditure was 6.6%.

### **Private health insurance**

At 30 June 2008, private health insurance was offered by 38 registered health insurers, giving a voluntary option to all Australians for private funding of their hospital and ancillary health treatment. It supplements the Medicare system,



which provides a tax-financed public system that is available to all Australians. Private health insurance can cover part or all of hospital theatre and accommodation charges to private patients in either a public or private hospital, a portion of medical fees for services provided to private patients, allied health services, programs to manage and prevent chronic disease, some dental services, aids such as spectacles, and ambulance transport.

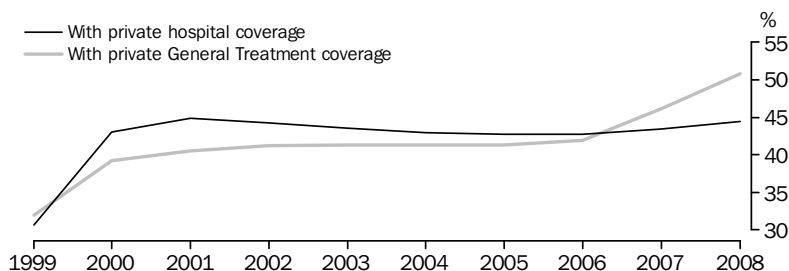
A risk equalisation model was introduced in 2007, which includes benefits paid by funds for persons aged 55 and over at an increasing rate, from 15% for 55 to 59 year olds and up to 82% for persons aged 85 and over. The introduction of a rebate for private health insurance premiums in 1999, and the Government's Lifetime Health Cover policy in 2000, saw private hospital cover increase, with

population coverage rates rising from 31% in June 1999 to 43% in June 2000. At June 2008, over 9.5 million Australians had private hospital insurance cover (nearly 45% of the population). Private hospital and general treatment (GT) insurance coverage from 2000–2008 is shown in graph 11.27 (prior to 1 April, 2007, GT was known as ancillary cover).

### Health work force

In 2006 approximately 514,400 people were employed in health occupations in Australia, comprising 6% of the total number of employed people (table 11.28). The largest components of the health work force were nursing workers (206,900) and medical practitioners (52,800).

**11.27 PERSONS WITH PRIVATE HEALTH INSURANCE, PROPORTION OF TOTAL POPULATION**



Notes: (a) Proportion of total population, year ending June.  
 (b) In June 2007 there was a break in the ancillary-general treatment series with a change in classification of policies as a result of new legislation.

Source: Private Health Insurance Administration Council, 'Quarterly Statistics, September 2009'.

### 11.28 EMPLOYED PERSONS IN HEALTH OCCUPATIONS 2006

	Persons '000	Part-time workers	
		Males %	workers %
Medical practitioners(a)	52.8	64.6	20.4
Medical imaging workers	9.6	30.5	31.2
Dental workers	28.7	30.3	37.7
Nursing workers	206.9	9.0	48.7
Pharmacists	14.9	44.0	30.6
Allied health workers	62.2	23.5	39.0
Complementary therapists	15.5	26.7	67.3
Other health workers	123.8	29.4	40.2
Total employed in health occupations	514.4	24.3	41.7
Total employed in all occupations	8 766.2	53.9	30.6

(a) Includes generalist and specialist medical practitioners.

Source: ABS data available on request, Census of Population and Housing 2006.

Females comprised 76% of the health work force. The high proportion of females in the health work force is due to their predominance in registered midwifery, registered nursing, enrolled nursing, as allied and other health workers and complementary therapists. Conversely, males were highly represented as pharmacists and represented 65% of medical practitioners.

Nearly 42% of the health work force were employed on a part-time basis, compared with 31% of all employed people in Australia. The higher proportion of part-time workers in the health sector is a reflection of the greater number of females in the health work force, who are more likely than males to work part time (table 11.28).

### **Household expenditure on health and medical care**

The Household Expenditure Survey (HES) provides estimates of expenditure on medical care and health by households across Australia. Expenditure is net of any refunds and rebates received from Medicare, private health insurance companies and employers.

The National Health Survey 2004–05 asked individuals the amount of times and types of health services they had used in the previous 12 months and their level of private health insurance coverage.

According to the 2003–04 HES, households spent \$46 per week, on average, on medical care and health expenses. This was approximately 5% of an average household's expenditure on goods and services each week.

The main items contributing to the household's overall medical care and health expenditure were accident and health insurance (averaging 39%), health practitioner's fees (31%), and medicines, pharmaceutical products and therapeutic appliances (25%). The remainder was mainly taken up by hospital and nursing home charges.

Health practitioner's fees averaged \$14 a week and were mainly for dental treatments (40%) and specialist doctor's fees (30%), with fees for general practitioners accounting for 11% of health practitioner's fees, reflecting the higher level of government subsidisation of GP services.

Although expenditure on GP's fees was comparatively less than other types of doctor's fees, people were more likely to have seen a GP. In the 2004–05 NHS, of persons who reported that they had seen a health practitioner in the last two weeks, a fifth had seen a general practitioner (20%), while dentists, specialists and other health professionals accounted for 6%, 5% and 13% respectively.

In 2004–05, 24% of people aged 15 years and over with ancillary cover had consulted a dentist or other health professional in the previous two weeks, compared with 16% of those who did not have ancillary cover (after adjusting for age differences).

### **Total health expenditure**

Health expenditure in Australia includes expenditure funded by the Australian, state and territory governments, by private health insurance and by individuals and households. Total expenditure on health in 2007–08 was \$103.6 billion compared with expenditure of \$94.9 billion the previous year, an increase of 9% in nominal terms (table 11.29). This represented an average rate of health expenditure in 2007–08 of almost \$4,900 per person. After adjusting for changes in prices, health expenditure increased by 6.0% in 2007–08, compared with annual average growth in the decade to 2005–06 of 5.2%. In 2007–08, total health expenditure as a proportion of gross domestic product was 9.1%; in 2003–04, the proportion was 8.7% (table 11.29).

### **Health of Aboriginal and Torres Strait Islander Australians**

Aboriginal and Torres Strait Islander peoples experience disadvantage across a range of socio-economic indicators. There is strong evidence from Australia and other developed countries that low socio-economic status is associated with poor health and increased exposure to a range of health risk factors.

### **General health**

In the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), conducted by the ABS, just over three-quarters of

### 11.29 TOTAL HEALTH EXPENDITURE, 2003–04 TO 2007–08

	<i>Current</i>	<i>Constant(a)</i>	<i>Nominal change(b)</i>	<i>Real growth(b)</i>	<i>Ratio to of health expenditure to GDP (%)</i>
2003–04	73 509	84 657	6.8	3.2	8.7
2004–05	81 060	89 634	10.3	5.9	9.0
2005–06	86 685	92 191	6.9	2.9	9.0
2006–07	94 938	97 720	9.5	6.0	9.1
2007–08	103 563	103 563	9.1	6.0	9.1

(a) Constant price health expenditure for 2003–04 to 2007–08 is expressed in terms of 2007–08 prices.

(b) Nominal changes in expenditure from year to year refer to the change in current price estimates. Real growth is the growth in expenditure at constant prices.

Source: Australian Institute of Health and Welfare, 'Health Expenditure Australia 2007–08', AIHW HW 46.

### 11.30 INDIGENOUS PERSONS: SELECTED LONG-TERM HEALTH CONDITIONS AND RISK FACTORS—2004–05

	<i>Total Indigenous</i>	<i>Indigenous to non-Indigenous rate ratio(a)</i>
	<i>%</i>	<i>%</i>
Long-term health conditions (ICD-10)		
Eye/sight problems	30	0.9
Asthma	15	1.6
Back problems	13	1.2
Ear/hearing problems(b)	12	1.0
Heart and circulatory problems/diseases	12	1.3
Arthritis	9	1.2
Diabetes mellitus	6	3.4
Kidney disease	2	10.0
Neoplasms/cancer	1	0.7
Osteoporosis	1	0.7
Lifestyle risk factors(c)		
Overweight/obese	60	1.2
Current daily smoker	50	2.2
Risky/high risk alcohol consumption - short-term	19	2.1
Risky/high risk alcohol consumption - long-term	16	1.1

(a) Indigenous age-standardised proportion divided by the non-Indigenous age-standardised proportion.

(b) Rate ratio is not age-standardised for ear/hearing problems

(c) Persons aged 18 years and over.

Source: ABS data available on request, 2004–05 National Aboriginal and Torres Strait Islander Health Survey, Australia.

Indigenous people aged 15 years and over assessed their health as good, very good or excellent while 22% reported their health as fair or poor. After adjusting for differences in the age structure between the Indigenous and non-Indigenous populations, Indigenous people were almost twice as likely to report their health as fair or poor.

#### Long-term conditions

Around two-thirds (65%) of Indigenous people had at least one long-term health condition in

2004–05 (table 11.30). While Indigenous and non-Indigenous people overall were equally likely to report a long-term condition, the prevalence of long-term condition(s) was higher among Indigenous Australians than non-Indigenous Australians in the age groups from 25–54 years.

Eye/sight problems (30%), asthma (15%), back and disc disorders (13%), heart/circulatory diseases (12%) and ear/hearing problems (12%) were the most commonly reported long-term health conditions among Aboriginal and Torres Strait Islander peoples in 2004–05. In addition,

6% of Indigenous people reported diabetes mellitus and 2% reported kidney disease. After adjusting for differences in the age structure between the Indigenous and non-Indigenous populations, Indigenous people were more than ten times as likely as non-Indigenous people to have kidney disease, three times as likely to have diabetes, and one and a half times as likely to have asthma.

For detailed information on cardiovascular disease, diabetes and kidney disease among Indigenous Australians, refer to *Selected chronic conditions among Aboriginal and Torres Strait Islander peoples in Australian Social Trends, 2007* (4102.0).

### **Lifestyle risk factors**

Based on self-reported height and weight information collected in the 2004–05 National Aboriginal and Torres Strait Islander Health

Survey (NATSIHS), six in ten Indigenous adults were overweight (29%) or obese (31%), similar to non-Indigenous adults (rate ratio of 1.2) (table 11.30). The proportion of Indigenous adults who smoked regularly (usually one or more cigarettes a day) was also high at 50%, and more than twice the rate for non-Indigenous adults.

Alcohol consumption risk levels are based on National Health and Medical Research Council 2001 (NHMRC) guidelines for risk of harm in the short and long-term. In the 2004–05 NATSIHS, around half of all Indigenous adults (49%) reported having consumed alcohol in the week prior to being surveyed, and 16% reported drinking at long-term risky/high risk levels. In addition, one in five Indigenous adults (19%) reported drinking at short-term risky/high risk levels at least once a week in the last 12 months, double the rate reported by non-Indigenous adults.

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<<http://www.medicareaustralia.gov.au>>

Australian Institute of Health and Welfare (AIHW), last viewed November 2009,  
<<http://www.aihw.gov.au>>

Department of Health and Ageing (DoHA), last viewed November 2009, <<http://www.health.gov.au>>

Medicare Australia last viewed October 2009, < <http://www.medicareaustralia.gov.au>>

National Centre in HIV Epidemiology and Clinical Research, University of NSW,  
<<http://www.nchechr.unsw.edu.au>>

National Health and Medical Research Council, last viewed November  
2009, <<http://www.nhmrc.gov.au>>

Organisation for Economic Co-operation and Development (OECD), last viewed November 2009,  
<<http://www.oecd.org>>

Private Health Insurance Administration Council (PHIAC), last viewed October 2009,  
<<http://www.phiac.gov.au>>

World Health Organization (WHO), last viewed November 2009, <<http://www.who.int>>

## EDUCATION AND TRAINING

Educational activity can occur within a variety of learning environments, some more formal than others. Typically, formal learning occurs within the distinct sectors of preschool, school, vocational education and training, and higher education. Structured learning within formal institutions is characterised by delivery that is systemic, planned and organised ahead of time, and which usually involves some evaluation of achievement. Many other kinds of structured learning can take place outside formal institutions and can continue after a person has completed schooling or gained trade or higher qualifications. For instance, structured learning might be undertaken as a short teacher-based course in the workplace in order to acquire, develop or upgrade work-related skills.

Non-formal education is delivered in an unstructured way, and on an ad hoc basis. It does not necessarily involve any student-teacher relationship or evaluation of achievement. Non-formal education includes on-the-job training and self-directed learning.

There were 3.7 million students in the 15,000 preschools, primary and secondary schools in Australia at August 2008. The education industry contributed 4% of Australia's gross domestic product in 2007–08, and 7.6% of employed persons in August 2009.

Core measures of educational activity in Australia currently focus on participation (the process of education), attainment (the outputs, such as national testing, qualifications and non-award courses) and educational resources (the inputs, such as funding and human resources). The structure of this chapter reflects these core measures. After a brief discussion of government responsibilities in education, the chapter describes participation in each sector of education, from preschool through to higher education. It then examines educational participation and attainment, and concludes with information on sources of educational funding.

The chapter contains two articles – *Overseas student enrolments with higher education providers* and *Trends in International Mathematics and Science Study*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Government responsibilities in education

State and territory governments' responsibilities in education and training include: the constitutional responsibility for providing schooling to all school-aged children; the major financial responsibility for government schools and contributing supplementary funds to non-government schools; and regulating school policies and programs. They determine curricula, course accreditation, student assessment and awards for both government and non-government schools. They are also responsible for the administration and major funding of vocational education and training (VET), and for legislation relating to the establishment and accreditation of higher education courses.

The Australian Government has special responsibilities in education and training for Aboriginal and Torres Strait Islander peoples, migrants, international partnerships in education, and financial assistance for students. It is principally responsible for funding non-government schools and higher education institutions, and provides supplementary funding for government schools and VET.

Governments' responsibilities for education and training extend beyond funding and administration. They have broader responsibility to plan for future demand both for education resources and for particular skills in the Australian workforce. Governments are also responsible for monitoring the performance of education services, and evaluating the outcomes of education.

## Education reform agenda

In 2008, the Council of Australian Governments (COAG) committed to a comprehensive education reform agenda for Australia. This reform impacts on education policy at all levels.

Inter-governmental agreements (IGAs) address key areas for economic and social growth. Three are of specific relevance to the Education and Training sector:

- National Education Agreement (NEA)

- National Agreement for Skills and Workforce Development (NASWD)
- National Indigenous Reform Agreement (NIRA).

There are high level performance indicators and targets in each national agreement. The COAG Reform Council (CRC) is charged with reporting on these indicators to inform the general public about government performance in making progress towards the targets. The CRC published its first reports on the NEA and NASWD in November 2009.

A number of national partnership agreements have also been developed to fund specific projects and deliver on nationally-significant reforms. Agreements relating to the education and training sector include: Building the Education Revolution; Literacy and Numeracy; Improving Teacher Quality; TAFE Fee Waiver for Child-Care Places; Low Socio-Economic Status School Communities; Early Childhood Education; and Youth Attainment and Transitions. These agreements will require similar measurement of targets and progress towards meeting them. All these COAG agreements can be found on the COAG website <<http://www.coag.gov.au>>.

## Early childhood education

Early childhood education in Australia encompasses early learning programs in preschools and other organisations, and the skills development of children from birth onwards. A number of studies at the domestic and international level have noted that young children who do not have appropriate learning opportunities may suffer from adverse outcomes later in life, although difficulties may be overcome by quality interventions which support families and individuals. Research also indicates that a child's brain undergoes the most rapid development in the first five years of life, reaching the peak of their learning potential up to the age of 8 years. This has prompted educational providers to introduce formal programs to maximise the uptake of basic skills in the early years. Such programs, aimed at raising children's readiness for school, are generally available in preschool and in a range of child care settings.

Of the 1,028,000 children aged 4–8 years who attended school in June 2008, 82% usually attended a preschool or a preschool program in

long day care in the year prior to attending school. Of those children who usually attended, parents reported that 94% made a good adjustment to school compared to 88% of children that did not attend either preschool or a preschool program in long day care in the year prior to attending school. See *Childhood Education and Care, Australia, June 2008* (4402.0) on the ABS website.

## Preschool students

Preschool generally refers to structured educational programs that are provided for children in the year prior to commencing full-time primary education; it excludes preschool programs that are run in long day care centres. The responsibility for providing preschool education rests with individual states and territories. Preschools may be operated by government, community organisations or the private sector.

Similar educational programs or curricula may be provided in long day child care centres and other settings. Preschool programs in long day care centres are structured and planned as part of an early childhood education program with specific educational aims and objectives. The program aims to meet the educational and developmental needs of children who are at least 3 years of age, although some younger children may be involved in such programs.

According to the 2008 ABS Childhood Education and Care Survey, 257,200 children attended preschool in the reference week, with 4 year olds representing 61% of this total. The 4 year olds

attending preschool in the reference week amounted to 60% of all 4 year olds surveyed. In contrast, only 11% of 5 year olds surveyed attended preschool in the reference week, which reflects the fact that most 5 year olds have entered primary school by that age.

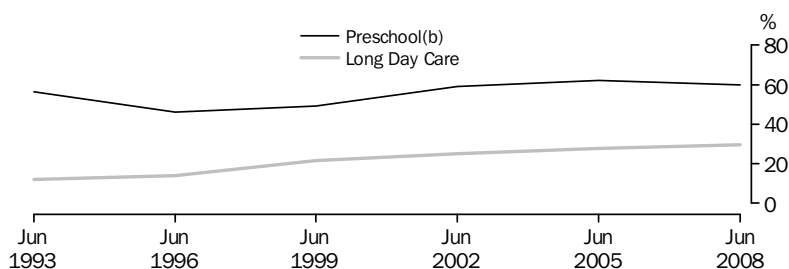
Graph 12.1 shows that the proportion of 4 year olds attending preschool has fluctuated between 1993 and 2008, while the proportion attending long day care centres has increased steadily (from 12% in 1993 to 30% in 2008).

The National Preschool Census (NPC), conducted annually for the Department of Education, Employment and Workplace Relations, collects information about the number of children attending preschools, which are registered providers and have a preschool educational program. The NPC found that there were 215,500 children enrolled in preschool in August 2008, an increase of 1% from the previous year's enrolments. Government preschools held 24% of enrolled children.

## Indigenous preschool students

The NPC provides a basis for the allocation of Australian Government funding to preschools in which Indigenous students are enrolled. The 2008 NPC reported 10,014 Indigenous children enrolled in government and non-government preschools, representing 5% of total preschool enrolments. Of these Indigenous enrolments, 28% were in New South Wales. Between 2007 and 2008, the number of Indigenous children enrolled in preschools increased by 4%, and the number of non-Indigenous enrolments increased

**12.1 PARTICIPATION OF FOUR YEAR OLDS(a), June**



(a) Refers to children who attended in the reference week.  
 (b) Excludes preschool programs in long day care centres.

Note: Some children will be included in both categories

Source: *Child Care, Australia (4402.0)*

*Childhood Education and Care Survey, Australia (4402.0).*

by 1% (table 12.2). Indigenous enrolments were reported by 1,819 preschools or 39% of preschools. Fifty-three percent of Indigenous preschoolers were enrolled in government preschools.

## Primary and secondary education

### School attendance

Following preschool, primary schooling in most states and territories begins with a preparatory or kindergarten year (pre-year 1), followed by six or seven year/grade levels. Secondary schooling involves a further five to six years to complete a full course of school study. Although primary and secondary schools are mostly separate institutions there is a growing trend, particularly in independent schools, towards combined primary and secondary schools. In 2008 almost 14% of schools (excluding special schools) were combined, compared with 10% in 1998.

School attendance has traditionally been compulsory between the ages of 5 or 6 to 15 or 16, depending upon the state or territory. Recent policy has focused on either extending those compulsory years of schooling (to 17), or ensuring that an alternative study arrangement and/or employment is being undertaken.

While the vast majority of primary school children are studying full-time, a sizable proportion of secondary school students study on a part-time basis. More than 20% of Year 12 students in Tasmania, and almost 17% in South Australia, were defined as part-time in 2008. Similarly, while

most school staff are full-time, almost 30% work part-time.

### School organisation and operation

In Australia, schools are classified as either government or non-government. Government schools are those which are the direct responsibility of the Director-General (or equivalent) of education within each state or territory and receive their basic funding from the relevant state or territory government. The term 'non-government school', refers to all other institutions delivering school education. They operate under conditions determined by state and territory government regulatory authorities and receive Australian and state or territory government funding.

Although each state and territory has its own approach to schooling, ongoing negotiations between the state and territory jurisdictions and the Australian Government are aimed at standardising core education curriculum modules (such as mathematics, science and English) and the age of commencement of students.

To address these issues, in May 2009, the Australian Curriculum, Assessment and Reporting Authority (ACARA) was established. ACARA has governance over a number of responsibilities in the schooling sector, including:

- a national schooling curriculum, in specific areas, from kindergarten to year 12
- a national assessment program, which is aligned to the national curriculum, and measures students' progress

### 12.2 INDIGENOUS PRESCHOOL ENROLMENTS

	2003	2004	2005	2006	2007	2008
New South Wales	2 694	2 672	2 773	2 763	2 679	2 780
Victoria	559	535	523	597	589	677
Queensland(a)	896	862	738	810	1 301	1 347
South Australia	1 114	1 148	1 047	1 066	1 097	1 297
Western Australia	1 834	1 858	1 905	2 127	1 981	2 042
Tasmania	331	341	356	322	358	324
Northern Territory	1 535	1 544	1 543	1 477	1 519	1 399
Australian Capital Territory	88	95	134	113	103	148
<b>Total Indigenous enrolments</b>	<b>9 051</b>	<b>9 055</b>	<b>9 019</b>	<b>9 275</b>	<b>9 627</b>	<b>10 014</b>
Total non-Indigenous enrolments	202 576	205 004	212 653	203 723	202 775	205 512

(a) Excludes children who were in Queensland's part-time Pre Year 1 program that was delivered by schools before 2007. This program was expanded to a full-time program in 2007 and is now considered a primary school program.

Source: Department of Education, Employment and Workplace Relations (DEEWR), 'National Preschool Census'.

- a national data collection and reporting program that supports analysis, evaluation, research and resource allocation; and accountability and reporting on individual schools; and broader national achievement.

Schools in Australia have considerable autonomy. Most states and territories have regional administrations which are responsible for matters such as planning school buildings and deploying staff, while a central curriculum unit provides general guidelines on course planning. Individual schools typically determine teaching and learning approaches within given guidelines, and offer various course options. Assessment of students varies across states and territories, some having a completely school-based assessment system, while others combine school-based assessment with external examinations.

### Primary schooling

The main emphasis in early primary school is on the development of basic language and literacy skills, simple arithmetic, moral values and social education, health training and personal development, and some creative activities.

In upper primary school, the focus is on developing the skills learned in earlier years. English, mathematics, social studies, science, music appreciation, art and craft, physical education and health are studied. There are also optional subjects such as religious instruction, foreign and community languages, and specific music courses.

### Secondary schooling

In some jurisdictions the first one or two years of secondary school consist of a general program which is undertaken by all students, although there may be some electives. In the middle secondary years, a basic core of subjects is retained, with students able to select additional optional subjects. In other jurisdictions, students select options from the beginning of secondary school.

In senior secondary schooling (Years 11 and 12) a wider range of subject options is available in the larger schools. Individual schools increasingly develop courses suited to the needs and interests of their students, subject to accreditation and moderation procedures. Vocational programs are included in the senior secondary curriculum in all jurisdictions. School students may obtain

certificates and undertake apprenticeships in the VET sector as part of their senior school study, and may undertake some parts of these programs in the workplace.

Students reaching the minimum school leaving age may leave school and seek employment, or enrol in a vocational course with a VET institution, such as a technical and further education (TAFE) college or a private business college. For many VET courses, completion of Year 10 is a minimum entry requirement. For those continuing to the end of secondary school, opportunities for further study are available at higher education institutions, VET institutions and other educational institutions. For students continuing to higher education, eligibility to undertake university courses is almost always based on satisfactory completion of a senior secondary school certificate (Year 12 qualification).

### Other schooling arrangements

Children may be exempted from attending a school if they live too far away from an appropriate institution or have a disability. These children receive tuition through various means, including distance education, School of the Air, and use of computer, facsimile, and satellite technologies.

Children of some Indigenous groups in remote areas of the Northern Territory, who live in small decentralised communities, receive schooling mainly in Homeland Learning Centres or Catholic Indigenous schools. They are taught by Indigenous teaching assistants supported by visiting teachers from established schools.

Boarding facilities are available at some non-government schools, mainly in cities and some larger towns. A small number of government schools, in particular those catering for groups such as Indigenous people, have residential hostels located close by.

Children may be home-schooled, if they have met the criteria set down by the relevant state or territory Department of Education. They must be enrolled as a student at a day school and be available when required for assessment against the regular school year curriculum.

Special instruction for physically and/or mentally disabled or impaired students or those with social

problems is provided as 'special education' by government and non-government authorities. It may be provided in special classes or units in regular schools, by withdrawal from regular classes for periods of intensive assistance by specialist staff, or in specialist schools. Parents in all states and territories have also formed voluntary organisations to establish additional schools, which cater for their children's special needs. The Australian Government provides funds to states and territories, non-government authorities and community groups to assist in the provision of services, maintenance and upgrading of special education facilities.

### School students and teaching staff

There were 9,562 schools operating in Australia at the time of the August 2008 schools census, of which 71% were government schools. In this chapter, student enrolments are generally

reported as absolute numbers. Staff however, are generally reported as 'full-time equivalent' (FTE), which is calculated by adding the full-time equivalent of part-time staff to the respective full-time count. There were 161,351 FTE teaching staff employed in government schools (65% of all teachers) and a further 85,755 FTE employed in non-government schools (table 12.3).

The 3.5 million students attending primary and secondary schools in August 2008 comprised 2.3 million (66%) in government schools, and 1.2 million (34%) in non-government schools. Overall, while student enrolments at all schools increased by 7.2% (232,900) between 1998 and 2008, this growth was not uniform across government and non-government schools. Non-government schools experienced a 22% growth (211,600) in enrolments over this period. In contrast enrolments in government schools

#### 12.3 SCHOOLS, STUDENTS AND TEACHING STAFF—August 2008

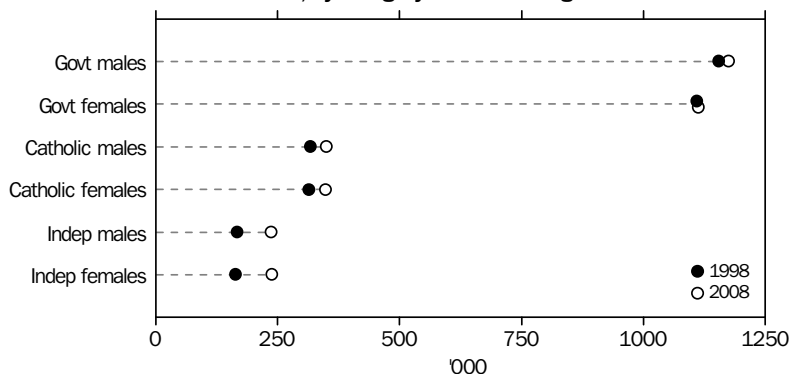
		Government	NON-GOVERNMENT SCHOOLS			All schools
		schools	Catholic	Independent	Total	
Schools(a)	no.	6 833	1 705	1 024	2 729	9 562
Students						
Males	'000	1 173.1	349.0	237.2	586.2	1 759.3
Females	'000	1 111.7	348.4	237.7	586.1	1 697.7
Persons	'000	2 284.8	697.4	474.9	1 172.2	3 457.0
Teaching staff (FTE)(b)						
Males	'000	47.7	14.3	14.5	28.8	76.6
Females	'000	113.6	32.1	24.9	56.9	170.5
Persons	'000	161.4	46.4	39.4	85.8	247.1

(a) Includes special schools.

(b) Full-time teaching staff plus full-time equivalent of part-time teaching staff.

Source: ABS data available on request, 2008 National Schools Statistics Collection.

#### 12.4 STUDENTS, By category of school—August 2008



Source: ABS data available on request, 2008 National Schools Statistics Collection.

## 12.5 STUDENTS, By category of school and year/level—August 2008

	Government schools %	NON-GOVERNMENT SCHOOLS			ALL SCHOOLS		
		Catholic %	Independent %	Total %	Males %	Females %	Persons '000
<b>Primary</b>							
Pre-year 1	70.1	19.6	10.4	29.9	51.4	48.6	270.3
Year 1	69.2	20.1	10.7	30.8	51.5	48.5	246.4
Year 2	69.9	19.8	10.3	30.1	51.1	48.9	266.6
Year 3	69.9	19.6	10.5	30.1	51.0	49.0	269.9
Year 4	69.8	19.5	10.7	30.2	51.1	48.9	268.8
Year 5	69.3	19.2	11.4	30.7	51.2	48.8	269.6
Year 6	68.5	19.3	12.1	31.5	51.1	48.9	260.4
Year 7 (a)	69.2	16.4	14.3	30.8	51.3	48.7	106.0
Ungraded	91.6	1.7	6.7	8.4	69.5	30.5	19.7
<b>Total</b>	<b>69.7</b>	<b>19.2</b>	<b>11.0</b>	<b>30.3</b>	<b>51.4</b>	<b>48.6</b>	<b>1 977.8</b>
<b>Secondary</b>							
Year 7 (a)	60.0	24.0	16.0	40.0	51.0	49.0	167.3
Year 8	60.9	21.9	17.1	39.1	51.1	48.9	277.7
Year 9	61.6	21.6	16.8	38.4	51.0	49.0	276.8
Year 10	61.5	21.2	17.3	38.5	50.8	49.2	274.0
Year 11	61.0	20.4	18.5	39.0	49.0	51.0	247.4
Year 12	58.6	21.9	19.5	41.4	47.0	53.0	210.4
Ungraded	88.4	4.2	7.4	11.6	59.7	40.3	25.5
<b>Total</b>	<b>61.2</b>	<b>21.4</b>	<b>17.4</b>	<b>38.8</b>	<b>50.2</b>	<b>49.8</b>	<b>1 479.2</b>
<b>All students</b>	<b>66.1</b>	<b>20.2</b>	<b>13.7</b>	<b>33.9</b>	<b>50.9</b>	<b>49.1</b>	<b>3 457.0</b>

(a) Year 7 is classified as primary school in Qld, SA and WA, and secondary school in other states and territories. The NT commenced classifying Year 7 as secondary school education for the first time in 2008.

Source: ABS data available on request, 2008 National Schools Statistics Collection.

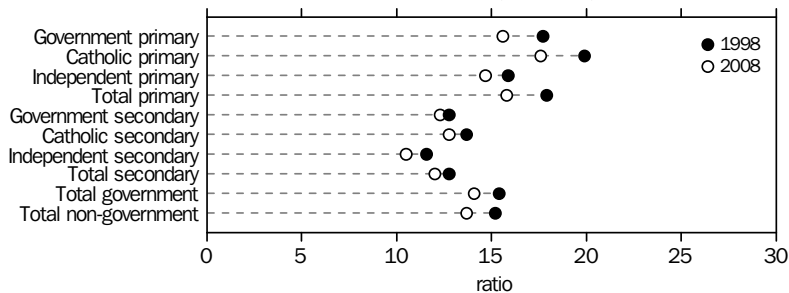
increased slightly, by 0.9% (21,400), over the same period (graph 12.4).

Table 12.5 shows the number of school students in 2008, at each year level and their distribution by category of school. Among all primary school students, 70% attended government schools and 30% attended non-government schools. At secondary level, 61% attended government

schools and 39% attended non-government schools. A fifth of all school students attended Catholic schools (19% of primary school students and 20% of secondary school students).

Graph 12.6 shows student/teacher ratios by category of school by level, in 1998 and 2008. These ratios represent the FTE number of school students divided by the FTE number of teaching

12.6 STUDENTS TO TEACHING STAFF(a), By category of school



(a) Number of full-time equivalent students divided by the number of full-time equivalent teaching staff.

Note: This graph should not be used as a measure of class size.

Source: ABS data available on request, National Schools Statistics Collection.

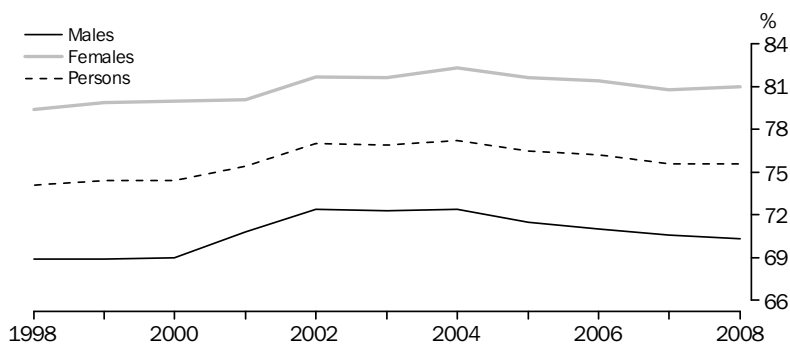
staff. Over the decade 1998 to 2008, student/teacher ratios fell from 15.4 to 13.9 students, across all schools in Australia. This decline was more marked in primary schools where the student/teacher ratio declined by 12% from 17.7 to 15.6 students per teacher over this period.

In 1998, student/teacher ratios were similar for government and non-government schools at 15.5 and 15.2 respectively. By 2008 these ratios had decreased to 14.1 for government schools, and to 13.7 in non-government schools.

## Apparent retention rates

Apparent retention rates are regarded as important measures of the performance of education systems and related government policies. The apparent retention rate is an estimate of the proportion of students of a given cohort who continued to a particular level or year of school education. In 2008 the apparent retention rate of full-time secondary school students from Year 7/8 to Year 12 was 75%. As in previous years, the 2008 apparent retention rate to Year 12 for full-time female students was higher (81%) than the corresponding rate for full-time male students (69%).

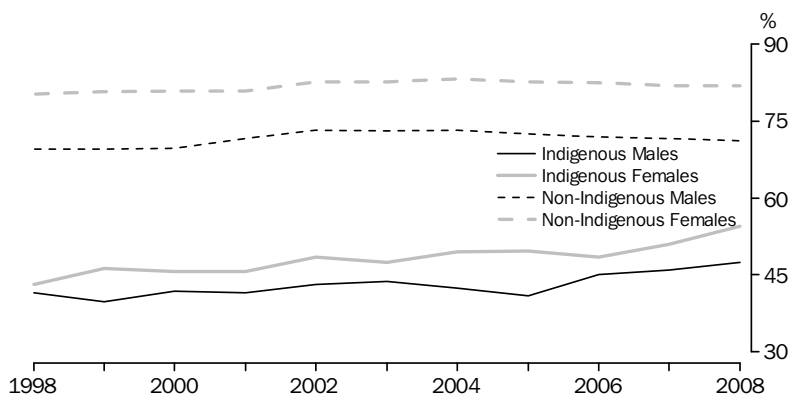
**12.7 APPARENT RETENTION RATES(a), Year 10 to Year 12**



(a) Full-time students only

Source: ABS data available on request, National Schools Statistics Collection.

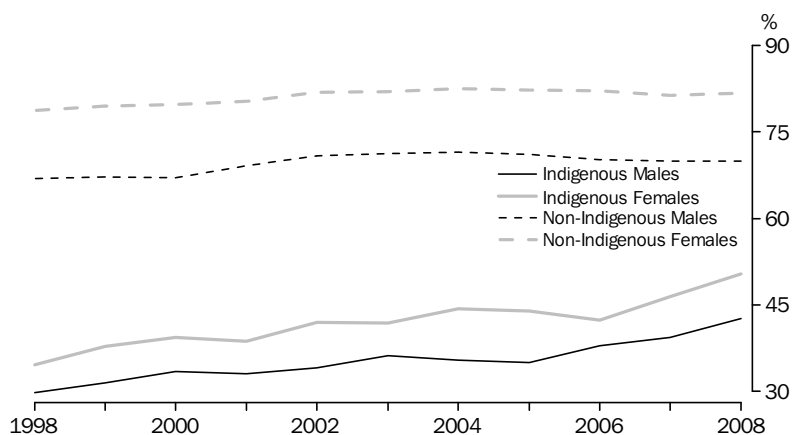
**12.8 APPARENT RETENTION RATES(a)(b), Year 10 to Year 12**



(a) Full-time students only. (b) Non-Indigenous series includes those whose Indigenous status was 'not stated'.

Source: ABS data available on request, National Schools Statistics Collection.

## 12.9 APPARENT RETENTION RATES(a)(b), Year 7/8 to 12



(a) Full-time students only. (b) Non-Indigenous series includes those whose Indigenous status was 'not stated'.

Source: ABS data available on request, National Schools Statistics Collection.

Consistent with apparent retention from the commencement of secondary schooling, apparent retention from Year 10 to Year 12 also remains higher for females than males. In 2008, the apparent retention rate from Year 10 to Year 12 full-time students, was 81% for females compared with 70% for males (graph 12.7).

The apparent retention rate in 2008 of full-time students from Year 10 to Year 12 was 1.4 percentage points higher for males, and 1.6 percentage points higher for females, than in 1998. While both male and female retention has risen over this time, and peaked between the years 2002 and 2004, the difference between male and female retention remains similar, a gap of 10.5 percentage points in 1998 and 10.7 percentage points in 2008 (graph 12.7).

Indigenous retention rates generally increased over the years 1998 to 2008, but have shown stronger growth since 2005. The Year 7/8 to Year 12 series and the Year 10 to Year 12 series were at an historical high in 2008, for both male and female students.

Care should be taken in interpreting apparent retention rates as their calculation does not take into account a range of factors such as overseas migration, repeating students, mature-age students, the change in part-time students and other net changes to the school population.

### Indigenous school students

The age profile of the Indigenous population differs markedly from the non-Indigenous population. At 30 June 2006, 38% of the Indigenous population was aged 0–14 years, compared with 19% of non-Indigenous people.

In August 2008, there were 96,000 Indigenous students attending primary schools (70,500 in 1998) and a further 55,600 attending secondary schools (31,600 in 1998) (table 12.10).

Table 12.10 shows increased Indigenous full-time student enrolments in every state and territory between 1998 and 2008, for both primary and secondary schooling. Overall, Indigenous enrolments increased across Australia by almost 50% over this period. A greater proportionate increase in secondary school enrolments (76%) than primary school enrolments (36%), is largely a reflection of the increased retention of Indigenous students in secondary schooling over that period. Also, in 2008, the Northern Territory government changed its grade structure to identify Year 7 students as being in secondary education, removing about 3,000 students from the primary student total and reclassifying them as secondary students for the first time.

In 1998, numbers of Indigenous students declined steadily between Years 1 to 8 (graph 12.11). In 2008 the decline in student



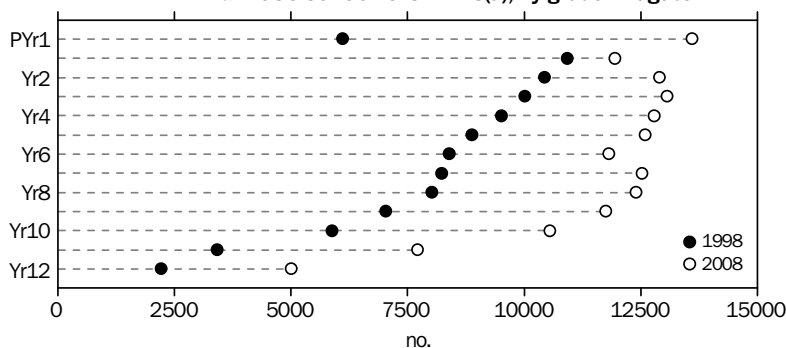
**12.10 INDIGENOUS SCHOOL STUDENTS(a), By level of school education—August**

Year	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
PRIMARY									
1998	19 185	3 406	19 231	4 509	11 697	2 422	9 614	475	70 539
2008	26 999	5 384	29 108	5 809	15 221	2 807	9 989	724	96 041
SECONDARY									
1998	9 898	1 749	8 659	1 518	4 464	1 686	3 303	350	31 627
2008	17 606	3 457	15 551	2 825	7 622	2 210	5 904	453	55 628
TOTAL									
1998	29 083	5 155	27 890	6 027	16 161	4 108	12 917	825	102 166
2008	44 605	8 841	44 659	8 634	22 843	5 017	15 893	1 177	151 669

(a) Full-time students.

Source: ABS data available on request, National Schools Statistics Collection.

**12.11 INDIGENOUS SCHOOL STUDENTS(a), By grade—August**



(a) Full-time and part-time students.

Source: ABS data available on request, National Schools Statistics Collection.

numbers between Year 1 through to Year 10 is much less marked, which significantly boosts the potential for Year 12 completion.

## Vocational education and training (VET)

There are almost 5,000 registered training organisations in Australia. While there are around 3,700 private training providers of VET, most VET students are engaged with publicly-funded training providers. These are predominantly government administered TAFE colleges or institutes. Other publicly-funded VET can be provided by higher education institutions, secondary schools and colleges, agricultural and technical colleges, and adult and community organisations. Private providers of VET can include private training organisations, business

colleges, industry associations, adult and community organisations and employers.

VET providers offer a wide range of subjects and programs including traditional trades, advanced technical training, para-professional and professional studies as well as basic employment and educational preparation. While formal VET study provides skills and nationally recognised qualifications for employment, students may complete only one or two subjects to gain specific skills, without completing a full qualification, if that is their choice.

### Students and courses

Overall, the number of students in publicly-funded VET in 2008 declined by 1.5% from 2000. Over this period, male student numbers increased by 2.6% while female student numbers decreased by 3.5%. The number of

publicly funded VET students increased by 2% between 2007 and 2008 (graph 12.12).

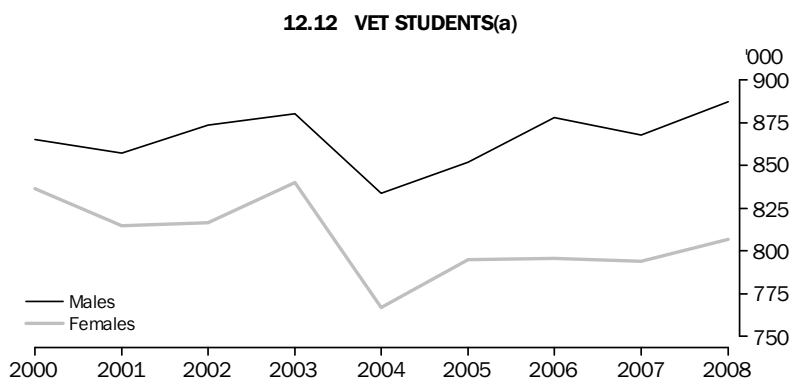
During 2008, there were 1.7 million students enrolled in publicly-funded VET courses with 52% being males (table 12.13). Enrolments by persons aged 19 years or younger increased by 3%, between 2007 and 2008. All age groups showed an increase in enrolments from 2007 to 2008 for both sexes with the exception of females in the 40–49 age group. In 2008, 58% of male students and 48% of female students were under 30 years of age.

VET courses are classified according to specific fields of education. Table 12.14 shows the number of course enrolments in 2008 in 11 fields

of education and for mixed field programs. Since students may be enrolled in more than one VET course, the number of course enrolments is greater than the total number of students. In 2008, there were 2.1 million course enrolments taken up by 1.7 million students.

Some 21% of enrolments in VET courses in 2008 were in the Management and commerce field, while 17% were in each of Engineering and related technologies, and mixed field programs. A further 11% of enrolments were in Food, hospitality and personal services.

Male enrolments were most dominant in the education fields of Architecture and building (93%); Engineering and related technologies



(a) Students enrolled in publicly-funded VET.

Source: National Centre for Vocational Education Research, National VET Provider Collection.

**12.13 VET STUDENTS(a), Vocational and preparatory courses(a)**

	2007			2008		
	Males	Females	Persons(b)	Males	Females	Persons(b)
Age group (years)	'000	'000	'000	'000	'000	'000
19 years and under	247.6	196.3	444.2	254.9	201.6	456.7
20 to 24 years	163.4	112.0	275.6	167.1	112.1	279.3
25 to 29 years	90.6	72.7	163.5	94.7	75.8	170.7
30 to 39 years	147.1	140.9	288.4	149.7	141.0	291.0
40 to 49 years	113.0	144.5	257.9	113.8	144.2	258.3
50 to 59 years	68.8	85.0	153.9	69.7	87.5	157.4
60 years and over	28.1	31.1	59.4	29.6	34.0	63.7
Not stated	9.3	11.7	22.1	8.1	10.5	19.4
<b>Total students</b>	<b>868.0</b>	<b>794.2</b>	<b>1 665.0</b>	<b>887.5</b>	<b>806.7</b>	<b>1 696.4</b>

(a) Includes all VET delivery by TAFE and other government providers, multi-sector higher education institutions, registered community providers and publicly funded delivery by private providers. Fee-for-service VET delivery by private providers has been excluded. School students undertaking VET in schools have also been excluded. A student is an individual who was enrolled in a subject or completed a qualification at any time in 2008.

(b) Includes 'sex not stated'.

Source: National Centre for Vocational Education Research, data available on request, National VET Provider Collection.

## 12.14 VET COURSE ENROLMENTS(a), Vocational and preparatory courses—2008

<i>Field of education</i>	<i>Males</i>	<i>Females</i>	<i>Persons(b)</i>
	'000	'000	'000
Natural and physical sciences	3.1	4.3	7.4
Information technology	29.9	12.2	42.0
Engineering and related technologies	305.1	35.7	340.9
Architecture and building	131.8	9.8	141.7
Agriculture, environmental and related studies	63.1	20.5	83.7
Health	43.1	61.3	104.4
Education	24.1	35.0	59.2
Management and commerce	154.4	266.7	421.4
Society and culture	55.0	153.8	209.0
Creative arts	20.8	31.3	52.1
Food, hospitality and personal services	84.2	135.1	219.4
Mixed field programs	158.9	186.7	346.0
<b>Total enrolments(a)</b>	<b>1 073.6</b>	<b>952.1</b>	<b>2 027.3</b>

(a) Includes all VET delivery by TAFE and other government providers, multi-sector higher education institutions, registered community providers, and publicly-funded delivery by private providers. Fee-for-service VET delivery by private providers has been excluded. School students undertaking VET in schools have also been Excluded.

(b) Includes 'sex not stated'.

Source: National Centre for Vocational Education Research, data available on request, VET Provider Collection.

(89%); Agriculture, environmental and related studies (75%); and Information technology (71%). In contrast, females were in the majority in the fields of Society and culture (74%); Management and commerce (63%); Food, hospitality and personal services (62%); Creative arts (60%); Health (59%); Education (59%); and Natural and physical sciences (58%).

### Apprenticeships and traineeships

Of the 426,700 apprentices and trainees in training at 31 March 2009, about two-thirds were males (66%). Some 47% of all apprentices and trainees were in the Technicians and trades workers occupational group. Within this occupation group, Automotive and engineering trades workers represented 28%, followed by Construction (27%) and the Electrotechnology and telecommunications (17%) sub-groups. Females in these three sub-groups represented only 2% of all female apprentices and trainees in 2009 (table 12.15).

Most of the Technicians and trades apprentices and trainees in 2009 were male (88%). Construction trades workers notably comprised 99% males. In contrast to Technicians and trades workers, the proportion of males among the 225,700 non-trades apprentices and trainees was less than that of females (47% males and 53% females).

The number of apprentices and trainees reduced slightly from March 2008 (427,000) to March 2009 (426,700). Over the same period, apprentices and trainees in the non-trades groups of Managers and Professionals increased by 26% and 16% respectively.

### Staff

Table 12.16 provides estimates of the number of teachers working in TAFE and other VET institutes in 2008–09. Of all VET teachers 61% were employed full time. The majority of full-time VET teachers were male (69%). In contrast, 56% of part-time VET teachers were female.

### Training courses

According to the 2005 ABS Survey of Education and Training, 5.3 million people aged 15–69 years (54% of whom were male), completed one or more work-related training courses in the previous 12 months. Of the 11.2 million work-related training courses completed, 30% were in the Management and professional field. Other commonly reported fields of training were Health and safety (21%), and Technical and para-professional (14%). Graph 12.17 shows the fields of work-related training courses completed by males and females in 2005.

## 12.15 APPRENTICES AND TRAINEES, In-training—31 March 2009

	Males	Females	Persons
<i>Occupation (a)</i>	'000	'000	'000
Managers	2.3	5.4	7.7
Professionals	6.3	2.5	8.8
Technicians and Trades Workers			
Engineering, ICT and Science Technicians	3.8	1.1	4.8
Automotive and Engineering Trades Workers	54.9	1.1	56.0
Construction Trades Workers	53.7	0.6	54.3
Electrotechnology and Telecommunications Trades Workers	34.4	0.7	35.0
Food Trades Workers	14.1	5.0	19.1
Skilled Animal and Horticultural Workers	5.8	2.0	7.8
Other Technicians and Trades Workers	9.4	14.5	23.9
Total Trades Workers	176.1	24.9	201.0
Community and Personal Service Workers	14.0	34.4	48.3
Clerical and Administrative Workers	22.4	36.6	59.1
Sales Workers	16.6	28.4	45.0
Machinery Operators and Drivers	29.5	4.3	33.8
Labourers	15.6	7.4	23.0
<b>Total</b>	<b>282.8</b>	<b>143.9</b>	<b>426.7</b>

(a) Classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO), First Edition, 2006.

Source: National Centre for Vocational Education Research, National Apprentice and Trainee collection.

## 12.16 VET TEACHING STAFF(a)(b)—2008–09

	Full-time staff(b)	Part-time staff	All teaching staff
	'000	'000	'000
Males	16.8	6.5	23.3
Females	7.9	9.7	17.5
<b>Persons</b>	<b>24.7</b>	<b>16.2</b>	<b>40.8</b>

(a) Annual average of quarterly data.

(b) Refers to persons working 35 hours or more in the survey week.

Source: Labour Force, Australia, Detailed, Quarterly, Aug 2009, (6291.0.55.003).

## Higher education

Public and private providers of higher education that receive funding from the Australian Government include both self-accrediting and non-self-accrediting institutions. Self-accrediting providers, like universities are generally established under state and territory legislation, are autonomous bodies, and operate in accordance with the requirements for Australian Government funding.

Non-self-accrediting higher education providers are accredited by state and territory authorities. They are mainly private providers of varying sizes, and include theological colleges and other providers that offer courses in areas such as

business, information technology, natural therapies, hospitality, health, law and accounting.

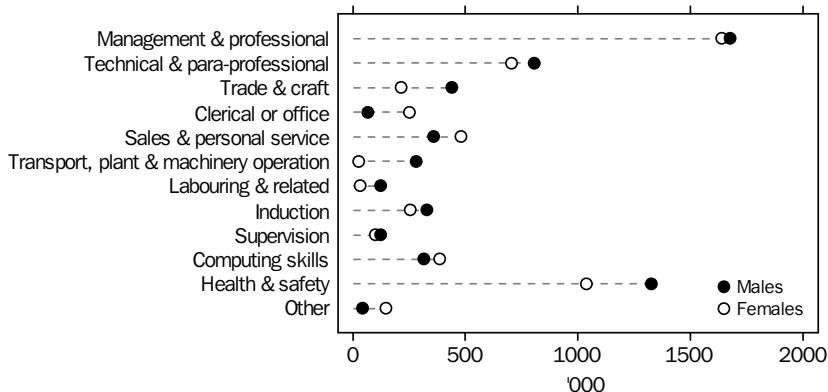
Higher education providers offer a range of undergraduate and post-graduate courses including traditional academic areas of learning and research, as well as more practical courses with a vocational orientation. Courses may vary in form, entry requirements, duration and method of assessment. For instance, courses can be full time or part time, delivered on-campus, by distance education, or a mix of these modes. In addition, some institutions offer courses which associate full-time study with periods of employment. Courses cover many disciplines such as the humanities, social sciences, education, environmental education, science, mathematics and computing, visual/performing arts, engineering and processing, health sciences, business, economics, law and agriculture.

## Students and courses

In 2008, there were 1.1 million students enrolled in higher education courses, of whom 63% were aged less than 25 years and 55% were female (graph 12.18 and table 12.19).

Table 12.19 shows a 4% increase in the number of higher education students from 2007 to 2008. Male student numbers increased by 3% (13,800 students), and females by 4% (22,449 students),

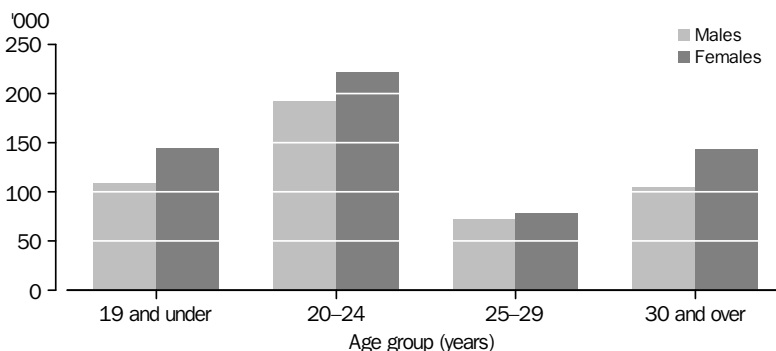
**12.17 WORK-RELATED TRAINING COURSES COMPLETED(a),  
Field of training—2005**



(a) Persons aged 15–69 years.

Source: ABS data available on request, Survey of Education and Training.

**12.18 HIGHER EDUCATION STUDENTS—2008**



Source: Department of Education, Employment and Workplace Relations (DEEWR), data available on request, 'Students 2008: Selected Higher Education Student Statistics'.

between the two years. The number of students choosing multi-modal tuition, that is a mixture of face-to-face and external study, increased by 7% (4,899 students). Internal (on-campus) students increased by 4% (29,327 students). There was a 5% increase (an addition of 18,700) in full-time female students overall.

The basic undergraduate course at most institutions is a bachelor degree of three or four years duration. In 2008, 67% of higher education students were enrolled in bachelor degree courses. Most institutions also offer postgraduate level study ranging from one to two years of full-time study for a master's degree and three to five years for a doctoral degree. In 2008, 27% of

higher education students were enrolled in postgraduate courses.

In 2008, higher education enrolments were most commonly in the fields of: Management and commerce; Society and culture; Health; and Education (table 12.20). These four fields accounted for 74% of all higher education course enrolments.

**Staff**

Higher education staff may be classified as academic or non-academic. In 2008, there were more non-academic than academic staff. The

### 12.19 HIGHER EDUCATION STUDENTS, By mode and type of enrolment(a)

	2007			2008		
	Males	Females	Persons	Males	Females	Persons
<b>Internal</b>						
Full time	291.2	332.1	623.3	304.2	347.0	651.2
Part time	95.0	109.9	204.9	94.9	111.4	206.3
<b>Total</b>	<b>386.2</b>	<b>442.0</b>	<b>828.2</b>	<b>399.2</b>	<b>458.4</b>	<b>857.5</b>
<b>External</b>						
Full time	9.3	14.5	23.8	9.2	15.6	24.8
Part time	43.0	63.5	106.5	42.3	65.2	107.5
<b>Total</b>	<b>52.3</b>	<b>78.0</b>	<b>130.3</b>	<b>51.5</b>	<b>80.8</b>	<b>132.3</b>
<b>Multi-modal</b>						
Full time	18.7	34.3	52.9	20.2	37.0	57.2
Part time	6.3	12.1	18.5	6.4	12.7	19.1
<b>Total</b>	<b>25.0</b>	<b>46.4</b>	<b>71.4</b>	<b>26.6</b>	<b>49.7</b>	<b>76.3</b>
<b>Total</b>						
Full time	319.1	380.9	700.0	333.6	399.6	733.2
Part time	144.3	185.5	329.8	143.6	189.3	332.9
<b>Total</b>	<b>463.5</b>	<b>566.4</b>	<b>1 029.8</b>	<b>477.3</b>	<b>588.8</b>	<b>1 066.1</b>

(a) This relates to the delivery of education to the student. 'Internal' is where the delivery of education is done entirely within the institution, 'external' refers to delivery of course material to students off-campus, and 'multi-modal' is where at least one, but not all units, are provided at the institution.

Source: Department of Education, Employment and Workplace Relations (DEEWR), data available on request, 'Students: Selected Higher Education Statistics'.

### 12.20 HIGHER EDUCATION STUDENTS, By level and field of education—2008

Field of education	LEVEL OF EDUCATION OF STUDY						Total courses
	Graduate		Advanced			Other education	
	Post-graduate degree	diploma/certificate	Bachelor degree	diploma/Diploma			
Natural and physical sciences	%	6.1	3.0	8.6	1.2	0.4	7.3
Information technology	%	6.5	2.5	4.4	5.4	0.2	4.6
Engineering and related technologies	%	6.2	3.4	7.8	5.2	1.0	6.9
Architecture and building	%	2.1	1.6	2.6	0.8	—	2.3
Agriculture, environment and related studies	%	2.0	1.4	1.5	1.1	0.3	1.5
Health	%	9.5	15.1	15.1	3.6	0.6	13.2
Education	%	8.9	20.6	9.0	0.8	4.9	9.4
Management and commerce	%	38.2	23.6	28.1	60.4	2.6	29.8
Society and culture	%	17.3	25.7	23.0	9.7	10.4	21.3
Creative arts	%	3.4	3.4	8.2	9.1	2.6	6.7
Food, hospitality and personal services	%	—	—	—	2.8	—	0.1
Mixed field programs	%	—	—	—	—	12.5	0.4
Non-award	%	—	—	—	—	64.4	2.1
<b>All students(a)</b>	no.	<b>215 692</b>	<b>73 566</b>	<b>716 776</b>	<b>25 393</b>	<b>34 668</b>	<b>1 066 095</b>

— nil or rounded to zero (including null cells)  
 (a) Students undertaking combined courses are counted in each field they are studying. Because of this, the sum of the field of education components may add to more than 100%.

Source: Department of Education, Employment and Workplace Relations (DEEWR), Selected Higher Education Statistics Staff 2008.

### 12.21 HIGHER EDUCATION STAFF(a)

<i>Staff classification</i>	<i>MALES</i>	<i>FEMALES</i>	<i>PERSONS</i>	<i>PERSONS</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>000</i>
<b>2003</b>				
Academic staff				
Above senior lecturer	80.9	19.1	100	7.8
Senior lecturer	66.3	33.7	100	8.8
Lecturer	53.6	46.4	100	12.3
Below lecturer	46.8	53.2	100	7.0
Total	61.3	38.7	100	35.9
Non-academic staff	37.8	62.2	100	48.6
All staff	47.8	52.2	100	84.4
<b>2008</b>				
Academic staff				
Above senior lecturer	75.5	24.5	100	10.5
Senior lecturer	60.9	39.1	100	10.2
Lecturer	49.8	50.2	100	14.4
Below lecturer	45.0	55.0	100	8.4
Total	57.7	42.3	100	43.6
Non-academic staff	35.4	64.6	100	54.8
All staff	45.3	54.7	100	98.4

(a) Includes full time and fractional full time staff.

Source: Department of Education, Employment and Workplace Relations (DEEWR), Selected Higher Education Statistics Staff 2008.

most frequent classification of academic staff was at the lecturer level.

Table 12.21 shows a declining ratio of male to female higher education staff between 2003 and 2008. Males comprised 48% of all staff in 2003,

but only 45% in 2008. Males outnumber females at and above senior lecturer levels of academic staff while females are higher at lecturer levels and below. In 2008, 58% of all academic staff were male, compared with 61% in 2003.

## Overseas student enrolments with higher education providers

In 2008, there were 294,163 overseas student enrolments across all higher education providers in Australia. This represented a 40% increase in overseas student enrolments from 2003 and a 7.7% increase from 2007. Overseas students studying with higher education providers made up 28% of the 1,066,095 student enrolments in 2008.

Over the past two decades, increasing numbers of overseas students have come to Australia. Exporting education has played a major role in forging links with other countries, especially from Asia (from where the majority of overseas students originate). A diverse student population helps to foster cultural exchange and understanding among students. Some overseas students also add to our skilled labour supply by becoming permanent residents after finishing their studies.

### Country of birth

Overseas students in higher education are born in a diverse range of countries. In 2008, the most common countries of birth for these students were China, Malaysia, India and Singapore (table 12.22). Between 2003 and 2008 the number from

China and India doubled and the number from Vietnam tripled. Of the other main countries of birth, the number from Singapore, Indonesia and the United States of America remained stable while students from Hong Kong reduced by 25%.

### Field of study

In 2008, across all levels of higher education, the most common fields of study for overseas students were Management and commerce, Information technology, and Engineering and related technologies (graph 12.23), a somewhat different pattern to that for the total population of students – where the most common fields of study were Management and commerce, Society and culture, Health, and Education.

### Level of study

In the higher education sector, overseas student numbers are highest in Bachelor degrees followed by Post-graduate degrees (graph 12.24). There were slightly different patterns in field of study at specific education levels. For example, at the Post-graduate degree level, overseas students primarily studied Management and commerce (55%), Information technology (11%), and Society and culture (9%), while at the Bachelor degree level, overseas students most commonly studied Management and commerce (53%), Health (9.9%), and Engineering and related technologies (8.9%). See table 12.20 for comparable figures relating to all students.

### Impact on the economy

Overseas higher education students spent a total of \$9.5 billion dollars in the 2008-09 financial year. This was comprised of \$3.2 billion in fees and \$6.3 billion in goods and services. Overall, across all education sectors, fees accounted for \$6.3 billion while goods and services accounted for \$10.2 billion, adding to a total of \$16.5 billion in Australia's international trade in education services (excluding AusAID and Defence, which totalled \$0.1 billion).

For more information on export of education services, see *International Trade in Services, 2008-09* (5368.0.55.003) on the ABS website.

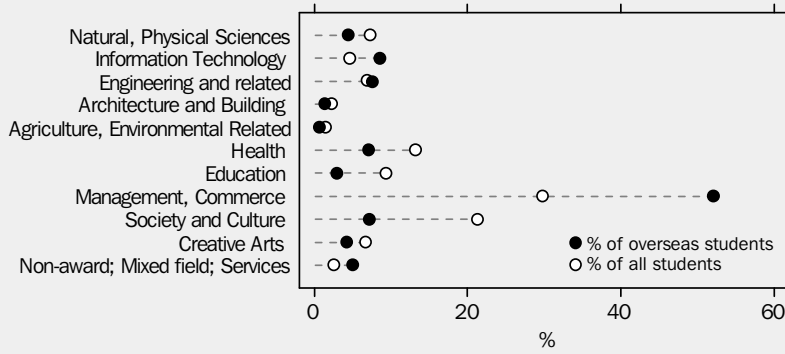
**12.22 OVERSEAS STUDENTS IN HIGHER EDUCATION, By country of birth – top 10**

Student country of birth	Students	Students	change
	2003	2008	on
	no.	no.	%
China (excludes SARs and Taiwan Province)	30 086	66 494	121.0
Malaysia	26 968	31 135	15.5
India	12 332	27 618	124.0
Singapore	26 711	26 553	-0.6
Hong Kong (SAR of China)	27 193	20 292	-25.4
Indonesia	12 128	11 844	-2.3
Vietnam	3 157	9 904	213.7
United States of America	9 203	9 482	3.0
Korea, Republic of (South)	3 766	6 499	72.6
Sri Lanka	2 663	5 169	94.1
<b>All countries</b>	<b>210 397</b>	<b>294 163</b>	<b>39.8</b>

Source: Department of Education, Employment and Workplace Relations (DEEWR). Selected Higher Education Statistics.

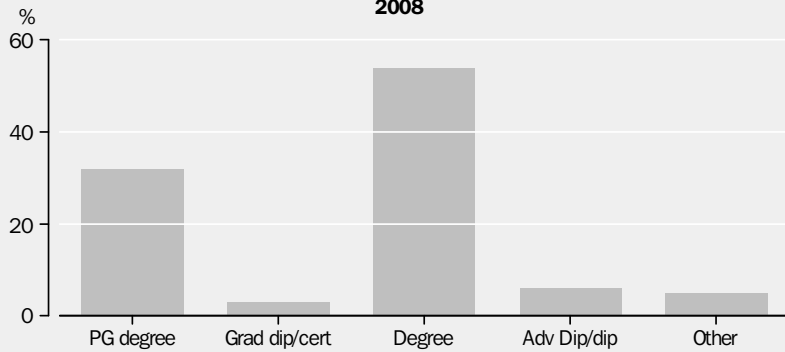


**12.23 PROPORTION OF OVERSEAS STUDENTS BY FIELD OF STUDY, 2008**



Source: Department of Education, Employment and Workplace Relations (DEEWR), 'Students 2008: Selected Higher Education Student Statistics'.

**12.24 PROPORTION OF OVERSEAS STUDENTS ENROLLED BY LEVEL OF EDUCATION, 2008**



Source: Department of Education, Employment and Workplace Relations (DEEWR), 'Students 2008: Selected Higher Education Student Statistics'.

## Adult and community education (ACE)

ACE is the most decentralised of the education sectors. ACE courses range broadly from general interest, recreational and leisure activities, personal development, social awareness and craft, through to vocational courses and remedial education.

ACE activity often complements the formal programs and qualification pathways provided by the school, VET and higher education sectors. While some ACE is provided by these sectors, many programs are delivered by a variety of community providers.

The 2005 Survey of Education and Training found that 594,800 adults were enrolled for study that did not lead to a qualification (table 12.25). Females comprised two-thirds (67%) of these persons and outnumbered males in all fields of study except for Architecture and building (92% male), and Engineering and related technologies (54% male).

The proportion of females was highest in Education (84% female) and in Food hospitality and personal services (80% female). Half of all

persons enrolled in non-qualification study in 2005 were enrolled in either Creative arts (20% female and 5.6% male) or Society and culture (16% female and 8.8% male) studies.

## Participation in education

In May 2009, 2.9 million people aged 15–64 years applied to enrol in a course of study. Of these, 93% gained a place and were enrolled in a course of study (table 12.26).

In the period 2004–09, the demand for enrolment in a course of study increased. For example, applications from people aged 20–24 years increased by 14% (graph 12.27). The number of 20–24 year olds studying increased by 15% over the same period and the number of 25–64 year olds studying increased by 12%.

Many young people continue in full-time education immediately after completing compulsory schooling, either in post-compulsory schooling or in other forms of education, such as VET. In May 2009, 69% of 15–19 year olds were in full-time education (including 51% still at school). Some young people return to full-time study following a period of absence after completing compulsory schooling. In the 20–24 years age cohort, excluding persons still at school, 29% were undertaking full-time tertiary study and 11% were undertaking part-time tertiary study (table 12.28).

Many people aged 25 years and over return to study, to upgrade their skills or to gain new skills, often while employed. Some 6% of all persons aged 25–64 years in May 2009, were studying part-time at a tertiary institution, compared with 3% studying full-time.

Between 2004 and 2009, the enrolment of 20–24 year olds in tertiary study increased by 16%. The number of full-time participants in this age group

### 12.25 PERSONS ENROLLED IN STUDY NOT LEADING TO QUALIFICATIONS, By gender and institutions—2005

Institution	Male	Female	Persons '000
	%	%	
School, uni, tafe, business college	38.9	61.1	103.5
Other training centers (a)	34.8	65.2	361.9
Adult or community education centre	24.9	75.1	129.4
<b>Total</b>	<b>33.4</b>	<b>66.6</b>	<b>594.8</b>

(a) Industrial skills centre, job network, professional industry associations, manufacturers, training organisations.

Source: ABS data available on request, Survey of Education and Training.

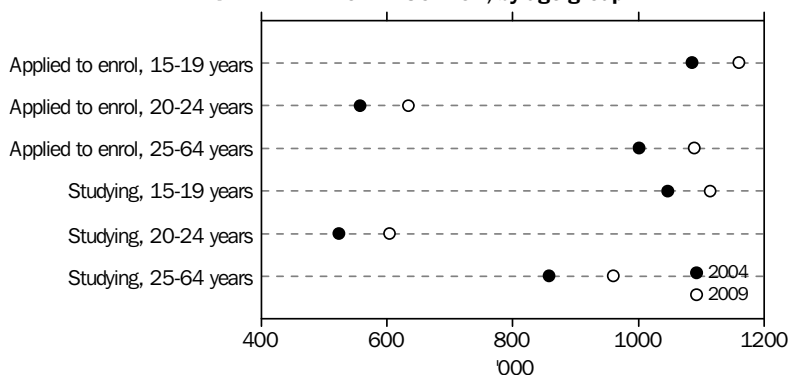
### 12.26 PARTICIPATION IN EDUCATION(a)—May 2009

	Males	Females	Persons
	'000	'000	'000
Applied to enrol	1 355.8	1 525.6	2 881.4
Studying	1 275.6	1 401.4	2 676.9
Gained placement but deferred study	47.6	82.9	130.5
Unable to gain placement	32.6	41.3	73.9

(a) Persons aged 15–64 years.

Source: ABS data available on request, 2009 Survey of Education and Work.

**12.27 DEMAND FOR EDUCATION, by age group**



Source: ABS data available on request, Survey of Education and Work.

**12.28 EDUCATION PARTICIPATION RATES—May 2009**

	AGE GROUP (YEARS)		
	15-19	20-24	25-64
	%	%	%
Attending school	50.9	0.1	—
Attending tertiary(a)			
Full time	18.4	29.2	2.5
Part time	7.7	10.7	6.0
Total	26.1	39.9	8.5
Attending Not attending	77.0	39.9	8.6
	23.0	60.1	91.4

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(a) Educational institutions other than schools.

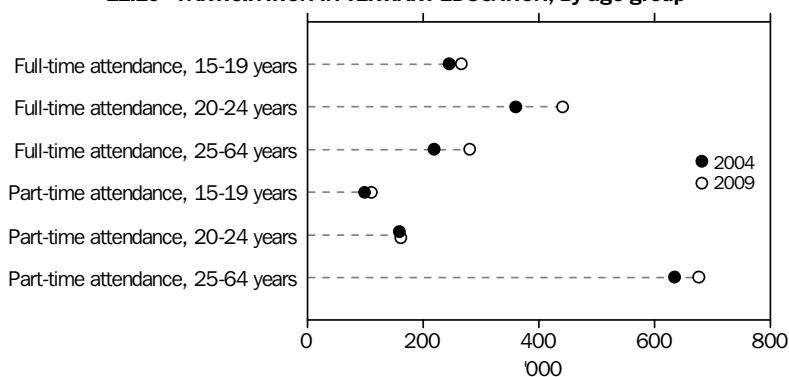
Source: ABS data available on request, 2009 Survey of Education and Work.

increased by 80,600 (22%) compared with an increase in part-time participation of 2,400 (2%). Over the same period, there was a 10% growth in the number of 15–19 year old participants. While the number of 25–64 year old participants increased by 12% overall, full-time participation by this age group increased by 28%, whereas part-time participation increased by 6% (graph 12.29).

### Education and work

Graph 12.30 shows the labour force status of all students aged 15–64 years in May 2009. Labour force participation was lowest among those in

**12.29 PARTICIPATION IN TERTIARY EDUCATION, By age group**



Source: ABS data available on request, Survey of Education and Work.

Year 12 or below (40%) and greatest for those undertaking a Certificate III or IV (86%). Of the 1.6 million students who were employed in May 2009, some 41% were enrolled for a Bachelor degree or above.

Among young people enrolled to study in May 2009, full-time employment was much higher among those aged 20–24 years than those aged 15–19 (22% compared with 8%). In both age groups, students who undertook part-time study were more frequently employed full-time than part-time.

### Full-time participation

The 'full-time participation rate' describes the proportion of the population who are fully engaged in education or work or a combination of both. This includes: full-time education; full-time work; or both part-time education and part-time work. The full-time participation rate can be useful to determine the proportion of young people not fully engaged in education and/or work, and who might be at risk of future marginal participation in the labour market.

In May 2009, 224,200 (16%) young people aged 15–19 years and 336,600 (22%) 20–24 year olds were not full-time participants. Some 54,000 (4%) 15–19 year olds and 109,000 (7%) 20–24 year olds were neither enrolled to study nor in the labour force (table 12.31).

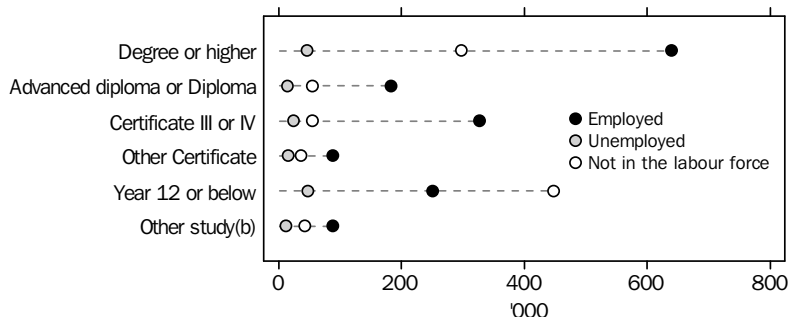
## Educational attainment

Formal educational qualifications are the desired outcome of most study at educational institutions. When issued by an accredited authority they denote a particular level of knowledge, skills and competencies. This assists the graduates themselves when entering the labour market, employers in selecting appropriate personnel, and clients in assessing the quality of professional services. The classification of educational attainment to level assists in measuring the stocks of available skills in a community, enabling policy makers to monitor the volume of skill levels compared with skills demand, and to influence the direction of future educational focus.

In May 2009, of the 14.4 million people aged 15–64 years, 8 million (55%) held at least one non-school qualification. These comprised 3.3 million whose highest non-school qualification was a Bachelor degree or above. A further 1.3 million reported an Advanced diploma or Diploma, 2.3 million reported a Certificate III or IV and 0.7 million reported a Certificate I or II as their highest qualification. Over half the population of 15–64 year olds (54%) had completed Year 12, and around two-thirds (68%) of those with Year 12 held a non-school qualification. Among those without a non-school qualification, 38% had completed Year 12, 14% had completed Year 11 and a further 30% had completed Year 10 as their highest year of schooling (table 12.32).

Graph 12.33 shows the proportion of males and females aged 15–64 years and the level of their

**12.30 PARTICIPATION IN EDUCATION(a), By labour force status—May 2009**



(a) Persons aged 15–64 years. (b) Comprises persons in bridging courses, studying for statements of attainment, other study not leading to a qualification or unable to be determined.

Source: ABS data available on request, *Survey of Education and Work*.

### 12.31 YOUTH PARTICIPATION IN EDUCATION, By labour force status—May 2009

	ENROLLED IN ALL STUDY(a)			Not enrolled	
	Full-time	Part-time	Total		Total
	'000	'000	'000	'000	'000
<b>15–19 YEARS</b>					
In the labour force					
Employed					
Full-time	8.1	84.6	92.7	119.2	211.8
Part-time	378.5	15.2	393.7	91.9	485.6
Total	386.6	99.7	486.4	211.0	697.4
Unemployed	64.9	7.9	72.8	66.9	139.7
Not in the labour force	550.6	3.5	554.1	54.0	608.1
<b>Total</b>	<b>1 002.1</b>	<b>111.2</b>	<b>1 113.3</b>	<b>331.9</b>	<b>1 445.2</b>
<b>20–24 YEARS</b>					
In the labour force					
Employed					
Full-time	17.4	113.5	130.9	586.6	717.6
Part-time	216.5	34.2	250.7	142.2	392.9
Total	233.9	147.7	381.6	728.9	1 110.5
Unemployed	31.6	7.7	39.3	71.0	110.3
Not in the labour force	176.2	6.6	182.9	109.0	291.8
<b>Total</b>	<b>441.8</b>	<b>162.0</b>	<b>603.8</b>	<b>908.8</b>	<b>1 512.7</b>

(a) All persons participating in education, including those whose study will not lead to a qualification.

Source: ABS data available on request, 2009 Survey of Education and Work.

### 12.32 LEVEL OF HIGHEST NON-SCHOOL QUALIFICATION, By highest year of school completed(a)—May 2009

Level of education	HIGHEST YEAR OF SCHOOL COMPLETED				Total(b)
	Year 12	Year 11	Year 10	Year 9 or below	
	'000	'000	'000	'000	
Postgraduate degree	562.9	7.4	na	na	582.2
Graduate diploma/Graduate certificate	317.4	12.7	na	na	354.0
Bachelor degree	2 185.8	51.7	77.3	8.4	2 323.2
Advanced diploma/Diploma	905.5	131.1	171.9	28.3	1 236.8
Certificate III/IV	876.0	363.9	858.4	187.5	2 286.5
Certificate I/II	247.5	107.8	225.1	60.4	640.9
Certificate not further defined	99.4	29.9	58.8	15.9	204.0
Level not determined	80.8	15.6	47.8	13.9	158.2
Total with non-school qualification	5 275.4	720.2	1 470.7	318.9	7 785.9
Total without non-school qualification	2 478.1	896.7	1 901.7	1 080.3	6 377.3
<b>Total</b>	<b>7 753.6</b>	<b>1 616.9</b>	<b>3 372.4</b>	<b>1 399.2</b>	<b>14 163.1</b>

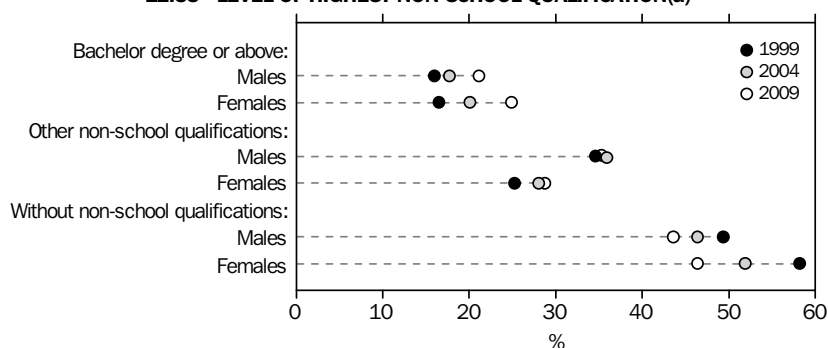
na not available

(a) Persons aged 15–64 years.

(b) Includes persons who never attended school.

Source: ABS data available on request, 2009 Survey of Education and Work.

### 12.33 LEVEL OF HIGHEST NON-SCHOOL QUALIFICATION(a)



(a) Persons aged 15–64 years.

Source: ABS data available on request, Survey of Education and Work.

### 12.34 LEVEL OF HIGHEST NON-SCHOOL QUALIFICATION, By age—May 2009

Level of education	AGE GROUP (YEARS)					Total(a)
	15–24	25–34	35–44	45–54	55–64	
	'000	'000	'000	'000	'000	'000
Postgraduate degree	16.2	172.8	155.8	136.5	101.0	582.2
Graduate diploma/Graduate certificate	12.4	68.8	103.8	98.6	70.3	354.0
Bachelor degree	227.6	785.2	569.8	454.2	286.3	2 323.2
Advanced diploma/Diploma	105.8	302.0	330.7	283.7	214.6	1 236.8
Certificate III/IV	269.4	512.1	579.6	548.4	376.8	2 286.5
Certificate I/II	94.5	95.3	154.7	165.5	130.9	640.9
Certificate not further defined	46.0	73.0	31.5	32.2	21.3	204.0
Level not determined	11.7	26.0	36.2	51.4	32.7	158.2
<i>Total with non-school qualifications</i>	<i>783.8</i>	<i>2 035.4</i>	<i>1 962.2</i>	<i>1 770.6</i>	<i>1 234.0</i>	<i>7 785.9</i>
<i>Total without non-school qualifications</i>	<i>2 174.1</i>	<i>932.6</i>	<i>1 090.8</i>	<i>1 126.2</i>	<i>1 053.6</i>	<i>6 377.3</i>
<b>Total</b>	<b>2 957.9</b>	<b>2 968.0</b>	<b>3 052.9</b>	<b>2 896.8</b>	<b>2 287.6</b>	<b>14 163.1</b>

(a) Persons aged 15–64 years.

Source: Education and Work, Australia, May 2009 (6227.0).

highest non-school qualification in 1999, 2004, and 2009. During this period the proportion of people aged 15–64 years with a Bachelor degree or above increased by 5.1 percentage points for males and by 8.3 percentage points for females. In 1999, some 16% of both males and females held a Bachelor degree or above. By 2004, these proportions had increased to 18% and 20% respectively. The proportions of males and females with a Bachelor degree or above continued to increase, reaching 21% for males and 25% for females at May 2009. Conversely, the proportion of males and females without non-school qualifications fell over this period, by 5.8 and 11.8 percentage points, respectively.

Overall, people 25 years and over are more qualified than those under 25 years, as many young adults are still involved in study and are yet

to obtain a non-school qualification. Around half (51%) of 15–19 year olds were still attending school in 2009 and 40% of 20–24 year olds were attending a tertiary education institution. Tables 12.34 and 12.35 show the level and field of the highest non-school qualification held by people aged 15–64 years in May 2009. Some 62% of all 25–64 year olds held a non-school qualification. This compares with 26% of 15–24 year olds and the most qualified age group of 25–34 years, of which 69% held a non-school qualification.

In 2009, 35% of people aged 25–34 years had a Bachelor degree or above, compared with 20% in the 55–64 years age group. There was little difference however for Certificates III or IV held by these age groups (17% for 25–34 year olds compared with 16% for 55–64 year olds).

### 12.35 MAIN FIELD OF HIGHEST NON-SCHOOL QUALIFICATION, By age—May 2009

	AGE GROUP (YEARS)					Total(a)
	15-24	25-34	35-44	45-54	55-64	
<i>Field of education</i>	'000	'000	'000	'000	'000	'000
Natural and physical sciences	25.8	74.9	60.2	55.9	50.5	267.2
Information technology	37.4	121.2	71.9	44.9	16.6	292.1
Engineering and related technologies	101.5	287.0	360.6	349.6	289.3	1 388.1
Architecture and building	42.4	114.9	125.4	127.0	80.0	489.7
Agriculture, environment and related studies	27.4	53.1	60.4	43.9	24.4	209.2
Health	44.6	193.5	189.8	200.7	141.1	769.7
Education	20.4	97.9	135.3	154.1	124.3	532.1
Management and commerce	208.0	539.5	469.7	375.9	242.1	1 835.2
Society and culture	117.5	279.0	248.4	250.7	168.5	1 064.1
Creative arts	49.4	127.4	80.3	56.6	31.5	345.3
Food, hospitality and personal services	96.1	124.0	126.8	79.1	44.9	471.0
Other(b)	13.2	23.0	33.2	32.0	20.8	122.2
<b>Total</b>	<b>783.8</b>	<b>2 035.4</b>	<b>1 962.2</b>	<b>1 770.6</b>	<b>1 234.0</b>	<b>7 785.9</b>
Persons without a non-school qualification	2 174.1	932.6	1 090.8	1 126.2	1 053.6	6 377.3

(a) Persons aged 15–64 years.

(b) Includes Field not determined and Mixed field programmes.

Source: Education and Work, Australia, May 2009 (6227.0).

The most common main fields of education for the highest non-school qualification held by people aged 15–64 years were Management and commerce (24% of those with qualifications), and Engineering and related technologies (18%).

Mature aged persons (45–64 years) most frequently had qualifications in the fields of Engineering and related technologies (21%), Management and commerce (21%) and Society and culture (14%).

## Trends in international mathematics and science study (TIMSS)

A population with a high level of maths and science literacy helps to maximise scientific and technological innovation, enhance our standard of living, and allows us to be internationally competitive. Educational systems play an important role in developing students' knowledge and skills in maths and science. These areas have recently been identified as being key learning areas for national, state and territory curriculum programs.

In 2007, the maths and science achievement of Australian students was found to be above or at the international average.

Trends in International Mathematics and Science Study (TIMSS) compared achievement levels in 49 countries at Year 8 level and 36 countries at Year 4 level. Australia was at, or statistically above, the TIMSS scale average of 500 in each case. Countries above Australia generally included Asian countries (such as Singapore, Hong Kong, China and Japan), the United States and England.

International benchmarks, based on four performance levels, also showed Australia to be above or at the international median. Again Asian countries, the United States and England ranked higher than Australia.

As reported in the TIMSS publication, there was a statistically significant increase in Australia's Year 4 mathematics TIMSS score in 2007 over 2003. The Year 8 science score showed a statistically

significant decrease in the same period; some other countries showed a similar decline. There was no significant change in Australia's Year 8 Mathematics or Year 4 Science score between 2003 and 2007 (table 12.36).

For both the maths and science indicators, the average scores for Year 4 students in New South Wales, Victoria and the Australian Capital Territory were above those for other states and territories.

There was no little or no significant difference in performance of Year 8 students between the states and territories; however the Australian Capital Territory and New South Wales had a higher proportion of students reaching the high benchmark level or above compared to other states and territories.

For further information see:

TIMSS Australia Highlights – [http://www.acer.edu.au/documents/TIMSS\\_2007-AustraliaHighlights.pdf](http://www.acer.edu.au/documents/TIMSS_2007-AustraliaHighlights.pdf)

TIMSS Australia Full Report – [http://www.acer.edu.au/documents/TIMSS\\_2007-AustraliaFullReport.pdf](http://www.acer.edu.au/documents/TIMSS_2007-AustraliaFullReport.pdf)

TIMSS Highlights 2007 – <http://nces.ed.gov/pubs2009/2009001.pdf>

*Australian Social Trends, June 2009* (4102.0) <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features30June+2009>

**12.36 AUSTRALIA'S ACHIEVEMENT IN MATHS AND SCIENCE, Average scores(a)**

	Australia (2003)	Australia (2007)	TIMSS Average
Maths, Year 4	499	516	500
Maths, Year 8	504	496	500
Science, Year 4	520	527	500
Science, Year 8	527	515	500

(a) Results for Year 4 and Year 8 are not directly comparable to each other, nor are the results for maths and science.  
Source: The Trends in International Mathematics and Science Study, 2007.



## Financing education

This section provides an overview of the source and application of funds in the delivery of education and training in Australia. As most of these funds can ultimately be traced back to initial government outlays, most of the tables relate to Government Finance Statistics (GFS). GFS data are compiled in accordance with the International Monetary Fund's Government Finance Statistics Manual 2001. GFS education data relate to the activities of the Commonwealth and the state and territory governments and, for the purposes of the data presented here, represent the general government sector only.

While the GFS provide an important perspective on education funding, a wider presentation using national accounting data is also important. National accounting data are compiled in accordance with the United Nations' System of National Accounts (SNA). Within the national accounting framework, the household sector includes both individuals and private non-profit institutions serving households (e.g. non-government schools).

Data for individual time periods are expressed 'in current prices', i.e. in terms of prices at a given time. Consequently, changes over time may be affected by price changes.

## Education expenses

### Final expenditure on education

Table 12.37 provides key data for 'final' education expenditure, sourced from the Australian System

of National Accounts. Overall, national education expenditure in dollar terms increased over the period 2003–04 to 2007–08 by 33%, from \$49.8 billion (b) to \$66.1b. As a proportion of Australia's GDP, however, expenditure on education actually decreased from 5.9% to 5.8% of GDP over the period, after peaking at 6.0% in the 2004–05 and 2005–06 financial years.

While government final consumption expenditure increased by 27% (\$8,091 million (m)) from 2003–04 to 2007–08, household final consumption expenditure on education services increased by 36% (\$5,702m) over the same period. Estimates of household final consumption expenditure on education cover the actual expenditures of households plus any expenses of private non-profit education institutions that have been funded by government.

Private expenditure on education consists of household final consumption expenditure for the purpose of education services plus gross fixed capital formation by private sector units classified to the education industry (e.g. the value of work done on new building works of non-government educational institutions). Private expenditure on education in the 2007–08 financial year was \$24,552m. Over the period 2003–04 to 2007–08, private gross fixed capital formation increased by 52% to reach \$3,172m, while for general government capital formation, the increase was 53% to reach \$3,990m.

Australia has been increasing its participation in a global market for education services. In 2008–09, exports of education-related travel services

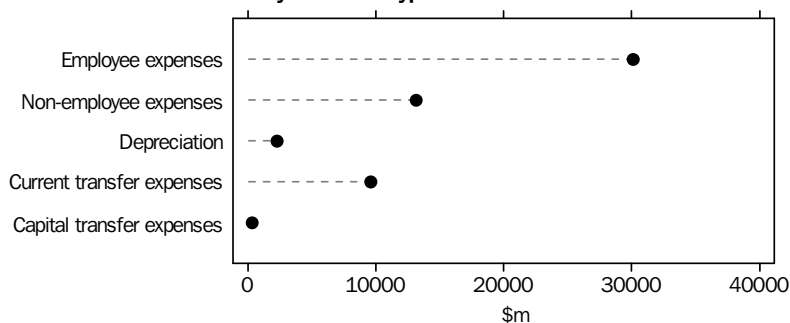
**12.37 FINAL EXPENDITURE ON EDUCATION**

		2003–04	2004–05	2005–06	2006–07	2007–08
Final consumption expenditure						
General government	\$m	29 445	31 620	33 397	35 555	37 536
Households(a)	\$m	15 678	17 133	18 649	20 033	21 380
Total	\$m	45 123	48 753	52 046	55 588	58 916
Gross fixed capital formation						
General government	\$m	2 600	3 134	3 387	3 557	3 990
Private	\$m	2 083	2 148	2 486	2 866	3 172
Total	\$m	4 683	5 282	5 873	6 423	7 162
<b>National Education Expenditure</b>	<b>\$m</b>	<b>49 806</b>	<b>54 035</b>	<b>57 919</b>	<b>62 011</b>	<b>66 078</b>
Gross domestic product (GDP)	\$m	841 351	897 642	967 454	1 045 674	1 132 172
National education expenditure as a proportion of GDP	%	5.9	6.0	6.0	5.9	5.8

(a) Includes private non-profit institutions serving households (ie private schools).

Source: Australian System of National Accounts, 2007–08 (5204.0).

**12.38 GOVERNMENT OPERATING EXPENSES ON EDUCATION(a),  
By economic type—2007–08**



(a) All levels of government.

Source: Government Finance Statistics, Education, Australia (5518.0.55.001).

totalled \$16,610m. Of this amount, fees paid by international students to Australian educational institutions totalled an estimated \$6,259m, and \$10,211m was spent in Australia by these students on associated living expenses (including food, accommodation and domestic transportation). Further to this, exports of royalties on education services (including royalty payments on manuscripts, education courses etc) were \$67m, and education services (including education consultancy, correspondence courses, services provided through educational institutions etc) were \$697m for 2008–09.

In 2008–09, Australia's imports of education-related travel services accounted for \$829m, royalties on education services were \$12m and education services were \$46m. This means that Australia is a net exporter of

education services, with a surplus of \$16,487 for 2008–09.

**General government expenses**

Operating expenses for all levels of government are shown by economic type in graph 12.38 and by purpose in table 12.39. In 2007–08, employee expenses of \$30,111m comprised 54% of all operating expenses on education.

Table 12.39 shows that total operating expenses (less intra-sector transfers) across all levels of government in 2007–08 were \$55,473m, an increase of \$3,619m (7%) from the previous year. This largely reflects increases in expenses on primary and secondary education of \$1,561m (5%) and tertiary education of \$1,738m (9%).

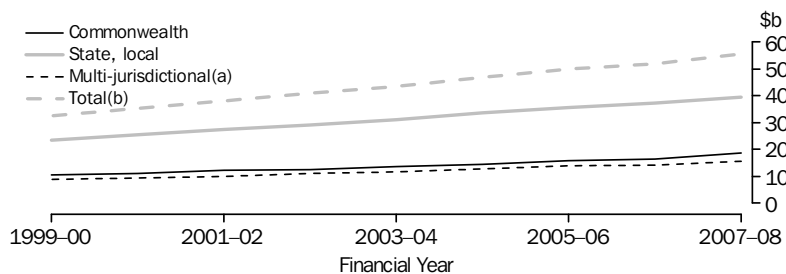
**12.39 GOVERNMENT OPERATING EXPENSES ON EDUCATION(a), By purpose**

	2003–04	2004–05	2005–06	2006–07	2007–08
	\$m	\$m	\$m	\$m	\$m
Primary and secondary education	23 895	25 790	27 501	28 983	30 544
Tertiary education					
University education	11 713	12 463	13 691	13 957	15 235
Technical and Further Education	4 275	4 556	4 705	4 765	5 157
Tertiary education n.e.c.	30	31	27	28	97
Total	16 018	17 050	18 423	18 751	20 489
Preschool and education not definable by level	1 816	2 038	2 151	2 317	2 439
Transportation of students	900	1 074	1 124	1 095	1 239
Education n.e.c.	688	759	648	708	762
<b>Total</b>	<b>43 317</b>	<b>46 712</b>	<b>49 846</b>	<b>51 854</b>	<b>55 473</b>

(a) All levels of government.

Source: Government Finance Statistics, Education, Australia, Electronic delivery, 2007–08 (5518.0.55.001).

## 12.40 GOVERNMENT OPERATING EXPENSES ON EDUCATION, By level of government



(a) The multi-jurisdictional sector currently contains units where jurisdiction is shared between two or more governments, or the classification of a unit to a jurisdiction is otherwise unclear. The main type of units falling into this category are public universities. (b) Less intra-sector transfers

Source: Government Finance Statistics, Education, Australia (5518.0.55.001).

In 2007–08, over half (55%) of the operating expenses on education across all levels of government was spent on primary and secondary education (\$30,544m). Operating expenses on the tertiary sector totalled \$20,489m, which includes \$15,235m on university education and \$5,254m on other tertiary education (including TAFE).

Over the four-year period from 2003–04 to 2007–08, operating expenses for education increased by 28% across all levels of government. Operating expenses for primary and secondary education, and tertiary education both rose by 28% over this four year period.

Graph 12.40 summarises operating expenses for education for each level of government. In 2007–08, operating expenses for education were \$18,694m for the Commonwealth Government, \$39,613m for state and local governments and \$15,568m for the multi-jurisdictional sector (mainly public universities). Intra-sector transfers that occurred between different levels of government for the purposes of education were \$18,403m, resulting in total government operating expenses of \$55,473m.

Operating expenses for education for state and local governments have remained higher than for the Commonwealth Government over the period from 1999–2000 to 2007–08. Over this period, operating expenses for education have increased proportionally more for the Commonwealth Government (80%) than for state and local governments (69%).

## Funding education

Funds to support educational facilities and the delivery of education services, originate from a variety of sources, predominately grants from the Australian (Commonwealth) Government, and state and territory governments. Sales of goods and services include fees and charges for tuition, which vary considerably within the education sector. To a lesser extent, other sources of funds may include items such as donations or return from investments.

While primary and secondary education is free in government schools in all states and territories, fees may be charged for the hire of text books and other school equipment (particularly in secondary schools). Voluntary contributions may also be sought from parents. Most non-government schools charge fees, although these may vary from school to school. Tuition fees are set in consideration of the school philosophy and affiliation, level of government funding received, and the educational services and facilities provided. Additional fees may be charged for textbooks, subject materials and extra-curricular activities.

Most VET providers charge students fees for the administration of VET courses, for tuition, materials or for student amenities. These fees vary according to the type of course and its duration. Higher education institutions receive revenue from students who are required to contribute to the cost of their education through the Higher Education Loan Programme, and from

other fee-paying students including overseas students.

Fees are usually charged for ACE programs that complement the formal programs and qualification pathways provided by the schools,

VET and higher education sectors. Fees vary considerably between ACE programs, being determined by the diverse range of ACE providers including community-based organisations and educational institutions.

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## CRIME AND JUSTICE

The effects of criminal activity, as well as people's perceptions about the extent of such activity, impact directly or indirectly on the quality of people's lives. This chapter provides an overview of the Australian criminal justice system, including people's interaction with the system either as offenders or as victims of crime. Data are presented on the characteristics of victims of crime and criminal offenders and on outcomes from the justice process. These data are sourced from administrative data collected by a range of agencies operating in the field of crime and justice and from periodic household surveys conducted by the Australian Bureau of Statistics (ABS). Justice is primarily administered through state and territory governments, with local variation in legislation, processes and operational structures. However, by taking account of these differences, nationally comparable crime and justice statistics provide indicators of the level and nature of crime across Australia and the associated outcomes of the criminal justice system.

The chapter concludes with an article *Personal fraud*, in which findings from the 2007 Personal Fraud Survey are presented.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Criminal justice system

The criminal justice system comprises the state/territory and Australian Government institutions, agencies, departments and personnel responsible for dealing with victims of crime, persons accused or convicted of committing a crime, and related issues and processes.

The eight states and territories have powers to enact their own criminal laws, while the Commonwealth has powers to enact laws, including sanctions for criminal offences, in relation to its responsibilities under the Constitution. Thus there are nine different systems of criminal law in Australia. The existence of cooperative arrangements between the various states and territories and the Commonwealth, such as those relating to extradition or to the creation of joint police services, helps address issues that have arisen out of the separate development of these various systems of criminal law.

Each state and territory has its own police, courts and corrective services systems that deal with offences against local laws and also federal laws in some cases. The federal criminal justice system deals with offences against Commonwealth laws. Criminal law is administered principally through the federal, state and territory police, the courts, and state and territory corrective services. As there is no independent federal corrective service, the relevant state or territory agencies provide corrective services for federal offenders.

The various agencies that comprise the criminal justice system act within a broader process in which criminal offenders interact with police, courts and corrective services. Diagram 13.1 illustrates the various stages involved in the processing of criminal cases and shows some of the links between these three elements of the criminal justice system.

The police, as well as other agencies such as the Australian Customs and Border Protection Service, are responsible for the prevention, detection and investigation of crimes. When alleged offenders are detected by police, they can be proceeded against either through the use of a non-court process (such as a caution, fine or diversionary conference) or charges may be laid before a criminal court. The court, including judicial officers and a jury (in the higher courts), with the assistance of the prosecution and the

defence, determines the guilt or innocence of the defendant.

Following the hearing of the charges, in cases where a finding of guilt is made by the court, sentences may be imposed. These may include imprisonment, community service orders of various kinds, fines or bonds. A number of jurisdictions have also introduced penalties such as home detention or work outreach camps that are administered by corrective services agencies.

## Expenditure on public order and safety

The Steering Committee for the Review of Government Service Provision, in the *Report on Government Services 2009*, estimated recurrent expenditure on justice in 2007–08 at \$498 per person. This excluded spending by governments on items such as justice services outside the scope of the Report (for example, expenditure on specialist courts). Total recurrent expenditure was \$10.7 billion (b) in 2007–08; \$7.1b was spent on police services and \$2.4b on corrective services (table 13.2).

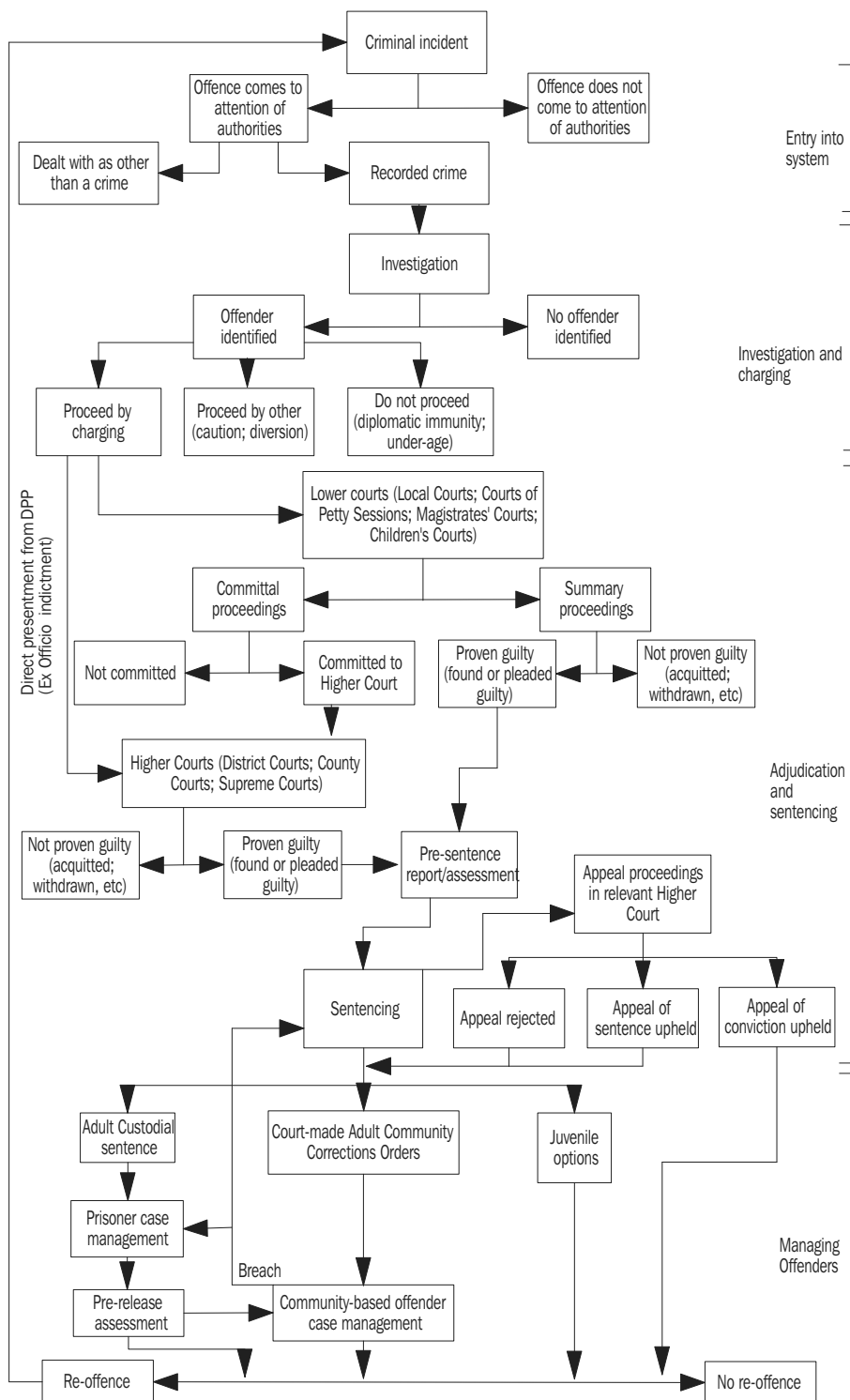
## Law enforcement agencies

Australia is served by police agencies in each state and the Northern Territory, with the Australian Federal Police (AFP) being responsible for policing the Australian Capital Territory. The Australian Crime Commission (ACC), and the Australian Customs and Border Protection Service (ACBPS) also have responsibility for the maintenance of law, order and safety.

While the principal duties of the police are the prevention, detection and investigation of crime, the protection of life and property, and the enforcement of law to maintain peace and good order, they may perform a variety of additional duties in the service of the state. These duties include the prosecution of summary offences, regulation of street traffic, performing duties as clerks of petty sessions, Crown land bailiffs, mining wardens and inspectors under fisheries and other relevant legislation.

With the exception of the AFP, the ACC and the ACBPS, police agencies in Australia are under the control of the relevant state and territory government. However their members also

### 13.1 FLOWS THROUGH THE CRIMINAL JUSTICE SYSTEM



Source: National Criminal Justice Statistical Framework (4525.0).

### 13.2 GOVERNMENT EXPENDITURE ON JUSTICE(a)(b)(c)

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$m	\$m	\$m	\$m	\$m
Justice sector					
Police services	6 356	6 494	6 747	6 945	7 150
Court administration – criminal	538	559	573	593	617
Court administration – civil(d)	508	524	514	513	521
Corrective services	1 996	2 106	2 232	2 311	2 435
<b>Total justice system</b>	<b>9 398</b>	<b>9 684</b>	<b>10 065</b>	<b>10 363</b>	<b>10 723</b>

(a) In 2007–08 dollars.

(b) Includes depreciation but excludes payroll tax and user cost of capital

(c) Excludes expenditure on justice services out of scope of the Report (e.g. expenditure on specialist courts).

(d) Civil expenditure excludes expenditure on probate matters.

Source: Steering Committee for the Review of Government Service Provision, 'Report on Government Services 2009'.

perform certain functions on behalf of the Australian Government such as the registration of aliens, and the enforcement of various Commonwealth Acts and Regulations in conjunction with the AFP and other Commonwealth officers.

## Australian Government policing agencies

### Australian Federal Police (AFP)

The AFP is a statutory authority established by the *Australian Federal Police Act 1979* (Cwlth). The AFP has its headquarters in Canberra, Australian Capital Territory. Its Criminal Investigations Program is conducted through seven operational areas: the Border and International Network; Economic and Special Operations; Terrorism; International Deployment Services; Protection Services; Aviation Services; and High Tech Crime Operations.

The AFP's role is to enforce Commonwealth criminal law and to protect Commonwealth and national interests from crime in Australia and overseas. The AFP is responsible for the prevention, detection and investigation of criminal offences such as drug offences, money laundering and organised crime, identifying the proceeds of crime, investigation of fraud against Commonwealth revenue and expenditure such as social security and taxation fraud, high tech crime, and preventing, countering and investigating terrorism. In the Australian Capital Territory, the AFP provides a full range of general community policing services, including traffic

control, special operations, search and rescue services and conventional crime investigations.

### Australian Crime Commission (ACC)

The ACC is responsible for providing a coordinated national criminal intelligence framework to deal with serious and organised criminal activity. It has access to special coercive powers to assist in intelligence operations and investigation, for circumstances where traditional law enforcement methods are not sufficient to combat sophisticated criminal activity.

Special investigations are undertaken by the ACC. These include matters such as firearms trafficking, established criminal networks, money laundering and tax fraud, people trafficking for sexual exploitation, amphetamines and other synthetic drugs, identity crime and card skimming, and vehicle rebirthing.

### Australian Customs and Border Protection Service (ACBPS)

The ACBPS manages the security and integrity of Australia's borders. It is responsible for the detection and the deterrence of the unlawful movement of goods, such as illegal drugs and firearms and people across the border.

### Number of sworn police officers

The number of sworn police officers in the various police services in 2007–08 is shown in table 13.3. The figures in the table are not directly comparable across the various jurisdictions, as

data for ACC, AFP and the Northern Territory are based on a headcount at the end of the financial year, whereas those for the other states and territories are on a full-time equivalent basis.

## National crime statistics

National crime statistics aim to provide indicators of the level and nature of crime victimisation in Australia and a basis for assessing change over time. When an incident of crime victimisation occurs, there are a number of ways in which this can be measured and a number of stages where a measurement can be taken; from the time that a person perceives they have been a victim through to reporting to police and the laying of charges. From among a range of possible ways of measuring crime, there are two major sources of statistics produced by the ABS that can inform the user about crime victimisation. The first of these is a measure of crimes reported to and recorded by police; the second is direct reports from members of the public about their experiences of crime as collected in household surveys conducted by the ABS. Neither of these sources will provide a definitive measure of crime

victimisation, but together they provide a more comprehensive picture of victimisation than either measure alone. Both sources have a number of limitations, however, of which users should be aware.

Recorded crime statistics are the result of incidents coming to police attention and a subsequent decision-making process carried out by police in accordance with the criminal law. As such they are subject to different legislation, rules of operation and procedures in different jurisdictions. Fluctuations in recorded crime may also be a reflection of changes in community attitudes to reporting crime rather than a change in the incidence of criminal behaviour.

A complementary picture of the nature and extent of crime comes from crime victimisation surveys. One of the primary reasons for conducting victimisation surveys is that many victims of crime do not report their experiences to the police, and therefore are not counted in police data. Victimisation surveys provide information about the broader community experience of crime, including the volume of crime that is not officially recorded. Crime victimisation surveys are suitable for measuring crimes against individuals (or households) who are aware of and recall the incident and how it happened, and who are willing to relate what they know. These surveys allow crime information to be related to personal and household characteristics, and facilitate the study of patterns of victimisation over time and across crime categories. Not all types of crime are suitable for measurement by household surveys. No reliable victim-based information can be obtained about crimes where there is no specific victim (e.g. trafficking in narcotics) or where the victim is deceased (e.g. murder). Crimes of which the victim may not be aware cannot be measured effectively; some instances of fraud and many types of attempted crimes fall into this category. The results from the latest Crime Victimisation Survey, conducted by the ABS from July 2008 to June 2009, were not available at the time of writing.

In addition to the now annual ABS crime victimisation survey, the ABS from time to time may conduct more in-depth surveys about particular aspects of crime victimisation that are of a more sensitive nature, for example, violence. Different methodologies may be used in these

### 13.3 SWORN POLICE OFFICERS(a)—2007–08

	no.	rate(b)
Australian Crime Commission(c)	103	na
Australian Federal Police(d)	2 855	na
New South Wales	16 316	236
Victoria	11 052	211
Queensland	11 136	263
South Australia	4 761	299
Western Australia	5 710	268
Tasmania	1 375	277
Northern Territory(e)	1 329	611
Australian Capital Territory	750	220

na not available

(a) FTE staff except for the Northern Territory, Australian Crime Commission and Australian Federal Police totals where data are based on headcounts.

(b) Per 100,000 persons.

(c) Seconded officers from home force.

(d) Excludes the AFP officers who were responsible for ACT policing and who were separately counted against the ACT.

(e) Includes Police auxiliaries and Aboriginal Community Police Officers.

Source: Australian Federal Police 'Annual Report, 2007-08'; Steering Committee for the Review of Commonwealth/State Service Provision, 'Report on Government Services 2009', Table 6.1 for state and territory figures; Australian Crime Commission Annual Report 2007-08.

instances which may yield differing results to other ABS crime victimisation collections. For more information on comparisons with other surveys, refer to *Information Paper: Measuring Crime Victimization, Australia – The Impact of Different Collection Methodologies, 2002* (4522.0.55.001).

## Crimes recorded by police

The ABS recorded crime victims collection produces national statistics on incidents of victimisation for a selected range of household and personal offences that come to the attention of state and territory police during a calendar year. The collection includes information about the characteristics of the victim and the nature of the criminal incidents.

Compared to 2007, the number of victims recorded by Australian state and territory police agencies in 2008 decreased for robbery, attempted murder and motor vehicle theft, as well as for unlawful entry with intent and blackmail/extortion. The offence categories recording the largest declines were robbery (down 8% or 1,488 victims) and attempted murder (down 6% or 15 victims). Conversely, there was an increase in the number of victims of kidnapping/abduction and manslaughter (both up 7% or 49 victims and 2 victims respectively). Murder and other theft also increased during this period (table 13.4).

Graph 13.5 shows the percentage change between 2007 and 2008 in the number of victims of selected offences.

In 2008, the Australian person victimisation rates for selected personal offence categories were:

- Murder, 1.2 victims per 100,000 persons
- Attempted murder, 1.1 victims per 100,000 persons

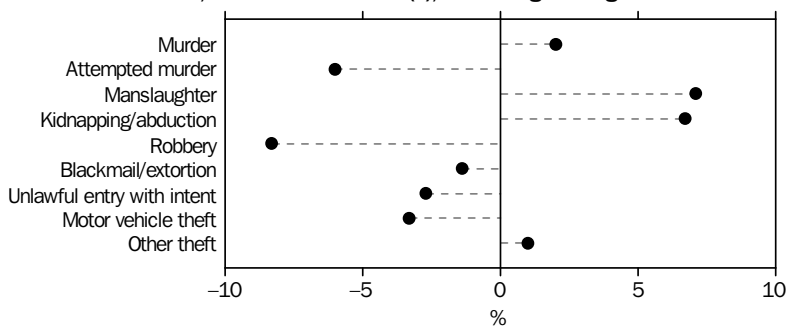
### 13.4 VICTIMS(a), By selected offences

	2007	2008
	no.	no.
Murder	255	260
Attempted murder	246	231
Manslaughter	28	30
Kidnapping/abduction(b)	733	782
Robbery	17 996	16 508
Armed robbery	7 657	6 716
Unarmed robbery	10 339	9 792
Blackmail/extortion(c)	424	418
Unlawful entry with intent	248 475	241 690
Property theft	173 374	168 936
Other	75 101	72 754
Motor vehicle theft(d)	70 614	68 270
Other theft	491 935	496 697

- (a) As recorded by police in all jurisdictions. Depending on the type of offence recorded, a victim may be a person, a premise, an organisation or a motor vehicle.
- (b) Counts for New South Wales may be inflated slightly due to the inclusion of 'deprivation of liberty' which is out of scope of this collection.
- (c) May include instances of food tampering in South Australia.
- (d) Western Australia data includes theft of caravans and trailers.

Source: Recorded Crime – Victims, Australia (4510.0).

13.5 VICTIMS, SELECTED OFFENCES(a), Percentage change—2007–08



(a) The definition of a victim varies according to the category of the offence (see Glossary in 4510.0).

Source: Recorded Crime – Victims, Australia (4510.0)

- Kidnapping/abduction, 3.6 victims per 100,000 persons
- Robbery, 67 victims per 100,000 persons
- Blackmail/extortion, 1.9 victims per 100,000 persons (table 13.6).

Some household crimes continued a declining trend in victimisation. Motor vehicle theft (319 victims per 100,000 persons) had the lowest rate since national reporting began in 1993 (637 victims per 100,000 persons). The victimisation rate for unlawful entry with intent decreased from 1,182 victims per 100,000 in 2007 to 1,131 victims per 100,000 persons in 2008.

### Age and sex of victims

During 2008, males were more likely to be a victim of murder than females, with 1.5 victims per 100,000 males compared to 0.9 victims per 100,000 females. The largest difference was in the 15 to 19 year age group, where males were four times more likely to be victims of murder than females. The only age group where females had a higher victimisation rate than males was for those aged 65 years and over.

Females were more likely to be victims of kidnapping/abduction than males. The age group with the highest victimisation rate for females was 10 to 14 year olds (18 victims per 100,000 females), followed by 15 to 19 year olds (13 victims per 100,000 females).

The offence which had the highest victimisation rate for all persons was robbery, with the 15 to 19 year old age group recording the largest rate (243 victims per 100,000 persons). Males were over four times more likely to be victims of robbery between the ages of 15 and 19 than females (table 13.6).

### Weapons used against victims of crime

In 2008, a weapon was used in 79% of attempted murders, 67% of murders and 41% of robberies. A knife was the most common type of weapon used in committing these offences; 31% of attempted murder, 34% of murder, and 19% of robbery victims were subjected to an offence using a knife.

A firearm was involved in nearly a third (30%) of attempted murders, 12% of murders and 6% of robbery offences.

Just over half (53%) of kidnapping/abduction and robbery (59%) offences committed did not involve the use of a weapon (table 13.7).

## Outcomes of police investigations

Statistics about the outcomes of police investigations describe the status of the processes of police investigations that are initiated following the reporting or detection of an offence. At any point in time, the status of investigations can include:

- not finalised (i.e. were still continuing, were pending or were suspended);
- finalised without an offender being proceeded against because the reported offence was not verified, the complaint was withdrawn, or the alleged offender could not be proceeded against because of some statutory or procedural bar; and
- finalised and an offender was proceeded against by initiating court action or some other form of formal proceeding (e.g. a diversionary conference or a formal caution).

In 2008, 78% of police investigations into murder and 74% of attempted murder were finalised within 30 days of a victim becoming known to police.

The lowest proportions of finalisations at 30 days were for victims of unlawful entry with intent (11%), motor vehicle theft (15%) and other theft (16%).

The highest proportions of investigations finalised where there was no offender proceeded against were for victims of kidnapping/abduction (45%) and motor vehicle theft (39%) (table 13.8).

## Offenders proceeded against by police

Data collected by the ABS on offenders provide a measure of the number of alleged offenders who come into contact with the criminal justice system at the 'investigation and charging' stage. Following the recording of a crime as reported by a victim or detected by police, the criminal incident moves to an investigation phase where decisions are made as to whether or not an offender will be proceeded against by police.

### 13.6 VICTIMISATION RATES OF SELECTED CRIMES(a)(b)—2007–08

Age group (years)	OFFENCE CATEGORY				
	Murder	Attempted murder	Kidnapping/abduction	Robbery(c)	Blackmail/extortion(c)
MALES					
0–9	0.8	0.7	4.0	1.4	0.2
10–14	0.4	—	9.9	83.2	—
15–19	1.7	1.5	6.4	384.5	2.4
20–24	1.9	3.4	5.2	309.3	4.1
25–34	2.0	2.8	2.7	146.3	3.5
35–44	1.6	2.5	1.5	65.8	4.1
45–54	2.6	1.6	0.9	50.4	3.1
55–64	1.5	0.5	0.5	30.8	2.0
65 and over	0.6	0.5	—	14.7	1.4
<b>Total(d)</b>	<b>1.5</b>	<b>1.5</b>	<b>2.8</b>	<b>98.6</b>	<b>2.4</b>
FEMALES					
0–9	0.5	0.3	5.7	0.7	0.3
10–14	0.4	0.4	18.2	20.0	—
15–19	0.4	0.6	13.0	93.1	2.2
20–24	1.3	1.3	8.3	95.4	2.7
25–34	1.4	1.3	4.4	57.5	1.8
35–44	1.5	0.8	2.0	29.9	1.8
45–54	0.8	—	0.6	27.1	1.4
55–64	0.5	—	0.6	19.4	1.2
65 and over	1.0	0.3	—	13.2	0.2
<b>Total(d)</b>	<b>0.9</b>	<b>0.6</b>	<b>4.4</b>	<b>34.5</b>	<b>1.3</b>
PERSONS (e)					
0–9	0.6	0.5	4.8	1.1	0.3
10–14	0.4	0.2	13.9	52.4	—
15–19	1.1	1.0	9.6	243.0	2.3
20–24	1.6	2.4	6.7	204.9	3.4
25–34	1.7	2.1	3.5	102.5	2.7
35–44	1.5	1.6	1.7	47.9	2.9
45–54	1.7	0.8	0.7	38.9	2.2
55–64	1.0	0.2	0.5	25.1	1.6
65 and over	0.8	0.4	—	14.0	0.7
<b>Total(d)</b>	<b>1.2</b>	<b>1.1</b>	<b>3.6</b>	<b>66.6</b>	<b>1.9</b>

— nil or rounded to zero (including null cells)

(a) Victims per 100,000 persons.

(b) As recorded by police in all jurisdictions.

(c) Refers to person victims only and therefore does not include organisations as victims.

(d) Includes victims for whom age was not specified.

(e) Includes victims for whom sex was not specified.

Source: Recorded Crime – Victims, Australia (4510.0).

The ABS Offenders collection produces statistics about alleged offenders aged 10 years and over who were proceeded against by police during a financial year for all states and territories, except Western Australia.

There were a total of 295,642 alleged offenders aged 10 years or more proceeded against by police during 2007–08 in Australia, excluding Western Australia. Over a quarter (26%) of

offenders were proceeded against more than once during 2007–08, with 4% of offenders proceeded against 5 or more times.

The most common principal offences for offenders were: acts intended to cause injury (334 offenders per 100,000 people aged 10 years or more); public order offences (315 offenders per 100,000 people aged 10 years or more); theft and related offences and illicit drug offences (both

### 13.7 VICTIMS(a), By use of weapon in commission of selected offences—2008

	<i>Murder</i>	<i>Attempted murder</i>	<i>Kidnapping/abduction</i>	<i>Robbery(b)</i>
Weapon used				
Firearm	31	71	24	1 047
Knife	87	73	55	3 218
Syringe	—	—	3	178
Bottle/glass	3	—	—	245
Bat/bar/club	3	4	—	501
Chemical	3	3	—	19
Other weapon	35	28	19	922
<i>Total(c)</i>	173	183	101	6 716
No weapon used	85	57	412	9 736
Unspecified(d)	—	3	269	56
<b>Total</b>	<b>258</b>	<b>233</b>	<b>782</b>	<b>16 508</b>

— nil or rounded to zero (including null cells)

(a) As recorded by police in all jurisdictions.

(b) A victim may be a person or an organisation.

(c) Includes weapon use not further defined.

(d) Includes unknown or not stated weapon use.

Note: Discrepancies may occur between sums of component items and totals across tables due to rounding and to protect confidentiality.

Source: Recorded Crime – Victims, Australia (4510.0).

### 13.8 VICTIMS OF RECORDED CRIME(a), By outcome of investigation at 30 days—2008

Offence	<i>Not finalised</i>	FINALISED		<i>Total(b)</i>
		<i>No offender proceeded against</i>	<i>Offender proceeded against</i>	
Murder	58	19	183	260
Attempted murder	60	11	160	231
Manslaughter	14	3	13	30
Kidnapping/abduction	457	148	177	782
Robbery				
Armed robbery	4 677	268	1 771	6 716
Unarmed robbery	7 202	588	2 000	9 790
<i>Total</i>	11 879	856	3 771	16 509
Blackmail/extortion	192	47	178	417
Unlawful entry with intent				
Involving the taking of property	151 720	3 715	13 437	168 936
Other	64 172	1 905	6 650	72 754
<i>Total</i>	215 892	5 620	20 087	241 690
Motor vehicle theft	57 790	4 117	6 344	68 270
Other theft	418 544	15 257	62 807	496 697

(a) Depending on the type of crime, a victim may be a person, a premise, an organisation or a motor vehicle.

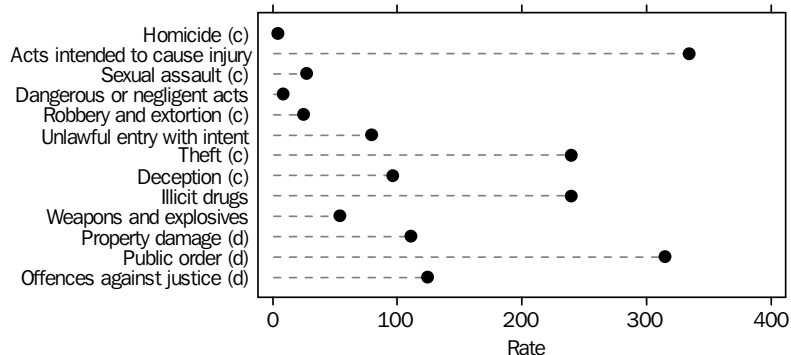
(b) Includes unknown outcomes of investigation.

Note: Discrepancies may occur between sums of component items and totals across tables due to rounding and to protect confidentiality.

Source: Recorded Crime – Victims, Australia (4510.0).



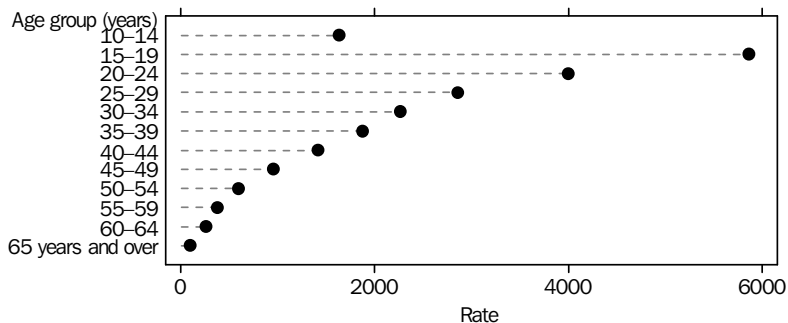
**13.9 OFFENDER RATE (a), Principal offence by combined states and territories (b)**



(a) Rate per 100,000 population aged 10 years or more. (b) Excludes Western Australia.  
 (c) Includes related offences. (d) Excludes Victorian penalty notices.

Source: Recorded Crime - Offenders, Selected states and territories, 2007-08 (4519.0).

**13.10 OFFENDER RATE (a), Age by combined states and territories (b)**



(a) Rate per 100,000 population  
 (b) Excludes Western Australia

Source: Recorded Crime - Offenders, Selected states and territories, 2007-08 (4519.0).

240 offenders per 100,000 people aged 10 years or more) (graph 13.9).

The rate of offending for young people aged 15 to 19 years was the highest for any 5 year age group, with 5,856 offenders per 100,000 people aged 15-19 years compared with an overall rate of 1,774 offenders per 100,000 people aged 10 years or more. Offender rates decreased in a fairly consistent manner as the offender's age increased (graph 13.10).

**Drug offences**

The traffic in, and abuse of, illicit drugs results in significant social and financial costs to both individuals and the community. To minimise the

harm associated with illicit drug activity, there is close cooperation between the Australian Government, the state and territory governments, the various police services and other law enforcement agencies. Included in these agencies is the Australian Customs and Border Protection Service which has, among other things, responsibility for the enforcement of laws controlling the import and export of illicit drugs. These agencies direct particular attention to monitoring the various types and forms of illicit drugs and identifying emerging patterns of use through the analysis of law enforcement data on illicit drug seizures and arrests.

In 2007-08, by far the largest category of drug arrests involved cannabis offences, with 52,465

### 13.11 DRUG ARRESTS(a)—2007–08

	no.
Drug type	
Cannabis(b)	52 465
Heroin and other opioids	2 279
Amphetamine-type stimulants	16 047
Cocaine	669
Hallucinogens	325
Steroids	163
Other and unknown(c)	6 727
<b>Total</b>	<b>78 675</b>

(a) Total of each state and territory, including Australian Federal Police data.

(b) Includes infringement notices.

(c) Other drugs' includes phencyclidine (PCP or 'angel dust'), diazepam, lignocaine, benzocaine, dothiepin, flunitrazepam, other prescription drugs, and any drug not included elsewhere.

Source: Australian Crime Commission, 'Illicit Drug Data Report', 2007–08.

arrests, or 67% of the national total. The next largest category of arrests involved amphetamine offences, with 16,047 arrests, or 20% of the national total (table 13.11).

## Courts

A hierarchy of courts and tribunals operate within each State and Territory, with the High Court being the highest court in the Australian judicial system (diagram 13.12).

The majority of courts handle matters that are criminal or civil in nature, while tribunals provide a less costly alternative for progressing some civil and administrative matters outside the formality of a court. A criminal matter generally arises where a charge has been laid either by police or some other prosecuting authority on the basis of a breach of criminal law. A civil matter occurs where there is a dispute between two or more individuals or organisations, where one party seeks legal remedy for an injury or loss from the other party who is alleged to be liable.

The majority of less serious matters are heard before magistrates and more serious matters are heard before judges. For criminal matters the seriousness is often determined by the nature of the alleged offence. In a civil context, seriousness is generally determined according to the compensation being sought. A court or tribunal's

ability to deal with a civil, criminal or other matter will depend on the state or territory's legislation or jurisdiction applicable to that particular level of court.

The hierarchy of courts also applies to appeal matters. Where grounds for appeal exist, the appeal process is available in both criminal and civil matters. Appeals resulting from civil tribunal decisions may be referred to the Magistrates', District/County, Supreme or Commonwealth Courts, depending on the jurisdiction and the rights of appeal. Criminal appeals resulting from the Magistrates' Court can be appealed at the District/County, Supreme or Commonwealth Court level in the first instance. The High Court of Australia is the highest court of appeal for both criminal and civil cases.

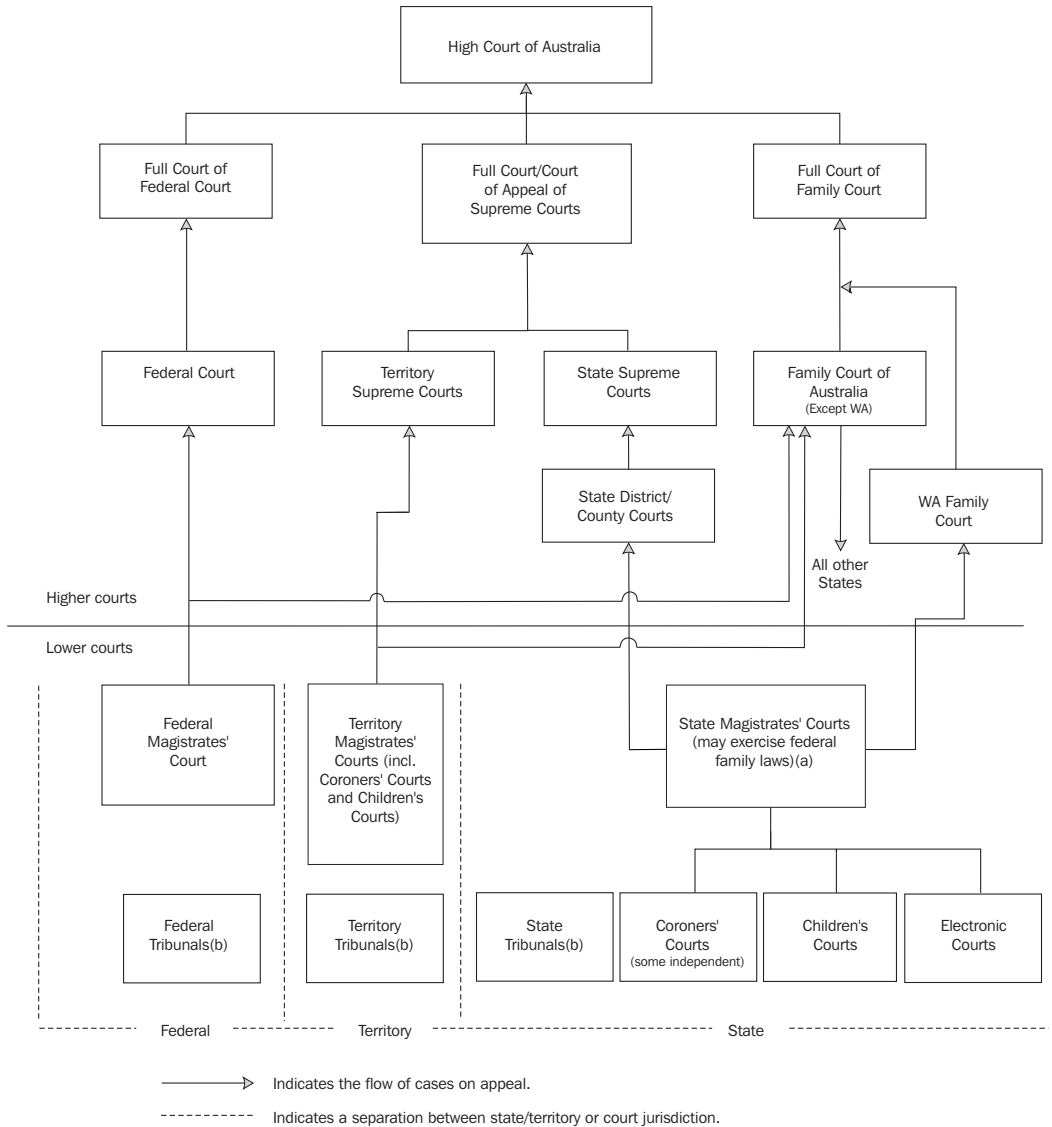
## Criminal courts

A system of courts for the hearing of criminal matters exists in all Australian states and territories. Once charges are laid by police, the court will hear evidence by both prosecution and defence, and will make a decision as to whether or not the defendant is guilty. In cases where the defendant is found guilty, the court may also record a conviction and impose a penalty.

All states and territories have a Supreme Court that can deal with any criminal matter. The larger jurisdictions also have an intermediate level of court, known as the District or County Court, that deals with the majority of serious offences. The Supreme Courts and Intermediate Courts are collectively referred to as the Higher Courts. All defendants that are dealt with by the Higher Courts have an automatic entitlement to a trial before a judge and jury. In some jurisdictions, the defendant may elect to have the matter heard before a judge alone. Offences that must be heard before a judge and jury are known as indictable offences. These include offences such as murder, manslaughter and drug importation as well as serious sexual offences, robberies and assaults.

The lowest level of criminal court is the Magistrates' Court, also known as the Court of Summary Jurisdiction, Local Court or Court of Petty Sessions. The majority of criminal cases are heard in these courts. Cases heard in Magistrates' Courts do not involve a jury, and a magistrate determines the guilt or innocence of the defendant. This is known as a summary

### 13.12 HIERARCHY OF COURTS



(a) In some jurisdictions, appeals from lower courts may go directly to the court of appeal in the Supreme Court. In the ACT, the court of appeal of the Supreme Court commenced exercising limited jurisdiction on 31 October 2001; full jurisdiction did not commence until 14 October 2002.

(b) Appeals from federal, state and territory tribunals may go to any higher court in their jurisdiction.

Source: Steering Committee for the Review of Commonwealth/State Service Provision, 'Report on Government Services 2006'.

proceeding. More serious offences are dealt with by the higher court levels.

Each state and territory also has a Children's Court to deal with offences alleged to have been committed by children or juveniles. In all states and territories children under 10 years of age cannot be charged with a criminal offence. The maximum age that defendants are considered to be a child or juvenile is under the age of 18 years at the time an offence was committed in all states and territories, except in Queensland.

Defendants in Queensland are deemed an adult at 17 years of age or over at the time an offence was committed. In the main these courts deal with summary proceedings, however in some jurisdictions they have the power to also hear indictable matters.

A defendant proven guilty in a criminal matter is entitled to appeal against the conviction or against the severity of the penalty imposed. Under some circumstances, the prosecution is also entitled to appeal against the leniency of the penalty. The states and territories differ in the way in which they manage appeals. Some appeals from Magistrates' Courts may be heard before the Intermediate Courts. In other jurisdictions the Supreme Court may hear these appeals. In most jurisdictions an appeal court or Court of Criminal Appeal may be constituted to hear appeals from the Supreme or Intermediate Courts, with the highest court of appeal for all jurisdictions being the High Court of Australia.

### **National criminal courts statistics**

The ABS Criminal Courts collection produces national statistics about defendants dealt with by the criminal jurisdictions of the Higher (Supreme and Intermediate), Magistrates' and Children's Courts of Australia for a financial year. The statistics provide a profile of the characteristics of finalised defendants, as well as data about the offences for which they have been charged, their guilt or innocence, and sentence outcomes for those proven guilty.

### **Criminal courts defendant summary characteristics**

Diagram 13.13 presents summary characteristics of defendants dealt with by the Higher, Magistrates' and Children's Courts of Australia. 'Finalised defendant' refers to all charges against a person or organisation having been formally

completed so that the defendant ceases to be an item of work to be dealt with by a particular court.

In 2007–08, there were a total of 675,765 defendants finalised in the Higher, Magistrates' and Children's Courts. The total comprised: 92% or 619,542 finalised defendants in the Magistrates' Courts; 6% or 39,412 defendants in the Children's Courts; and 2% or 16,811 defendants in the Higher Courts.

Of those defendants finalised in the Higher Courts, 85% (14,342 defendants) were adjudicated, meaning that the court made a determination of the defendant's guilt or innocence of the offence(s) with which they were charged. The remaining 15% (2,469 defendants) were finalised by non-adjudicated methods, in which there is no determination of the charges by the court. This includes outcomes such as all charges being withdrawn by the prosecution.

In the Magistrates' Courts, 91% (565,833 finalised defendants) were adjudicated, while 9% (53,691 defendants) were finalised by non-adjudicated methods.

In the Children's Courts, 81% (31,986 finalised defendants) were adjudicated and 19% (7,425 defendants) were finalised by non-adjudicated methods.

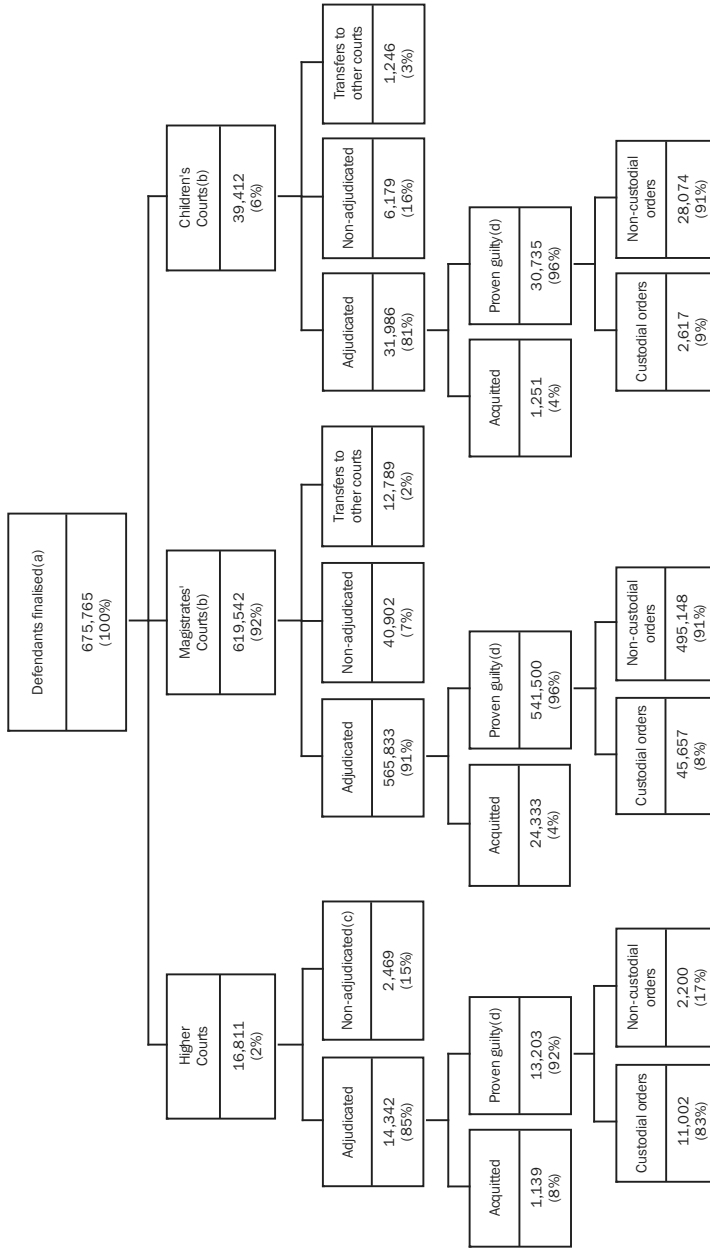
## **Higher Courts**

### **Adjudicated defendants – principal offence**

An adjudicated defendant is either a person or an organisation finalised via a guilty plea or a decision by the court as to their guilt or innocence of the final charges laid. Defendants can also be finalised by non-adjudicated methods such as transfer to other court levels or withdrawal by the prosecution.

In 2007–08, defendants were adjudicated in the Higher Courts for principal offences that fall within the following divisions of the Australian Standard Offence Classification (ASOC): acts intended to cause injury (23%); illicit drug offences (18%); sexual assault (15%); robbery/extortion (11%); and unlawful entry with intent (9%). Over three quarters of defendants adjudicated (76% or 10,861 defendants) by the Higher Courts had a principal offence in one of these five categories (table 13.14).

13.13 CRIMINAL COURT FINALISATIONS—2007–08



(a) Defendants will be counted twice where they are transferred from one of the three court levels and then finalised in another within the same reference period.

(b) Includes defendants with an unknown method of finalisation.

(c) Includes defendants transferred to other courts.

(d) Includes defendants for whom a principal sentence is unknown.

Source: *Criminal Courts, Australia (4513.0)*.

### 13.14 DEFENDANTS ADJUDICATED IN HIGHER COURTS, Principal offence—2007–08

	PROVEN GUILTY			Total(a)	Total adjudicated
	Acquitted	Guilty finding by court	Guilty plea by defendant		
Homicide and related offences	81	118	250	368	449
Acts intended to cause injury	250	315	2 696	3 026	3 276
Sexual assault and related offences	502	345	1 231	1 597	2 099
Dangerous or negligent acts endangering persons	19	26	310	343	362
Abduction and related offences	9	17	87	107	116
Robbery, extortion and related offences	79	98	1 430	1 554	1 633
Unlawful entry with intent/burglary, break and enter	22	62	1 111	1 212	1 234
Theft and related offences	23	43	360	415	438
Deception and related offences	38	59	694	763	801
Illicit drug offences	56	167	2 363	2 559	2 615
Weapons and explosives offences	4	6	173	182	186
Property damage and environmental pollution	12	28	275	307	319
Public order offences	5	28	263	294	299
Road traffic and motor vehicle regulatory offences	—	—	6	6	6
Offences against justice procedures, government security and government operations	15	23	199	230	245
Miscellaneous offences	23	33	189	226	249
<b>Total(b)</b>	<b>1 141</b>	<b>1 368</b>	<b>11 652</b>	<b>13 204</b>	<b>14 345</b>

— nil or rounded to zero (including null cells)

(a) Includes defendants with charges proven, not further defined.

(b) Includes defendants for whom offence data are missing or a principal offence could not be determined.

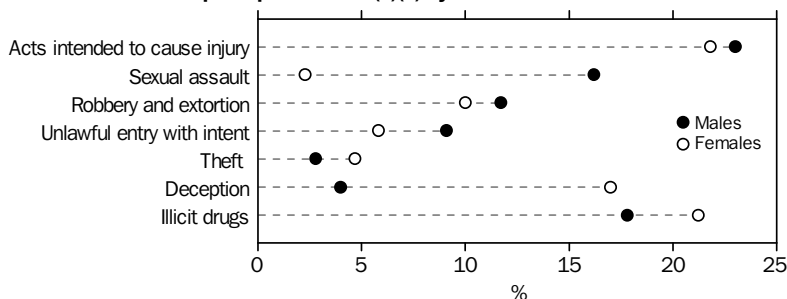
Source: Criminal Courts, Australia (4513.0).

Nationally, 92% (13,204) of adjudicated defendants were found guilty or pleaded guilty in the Higher Courts, while 8% (1,141) were acquitted.

Defendants were most likely to be acquitted for the principal offences of sexual assault (24%) and homicide (18%).

All defendants charged with road traffic offences (100%) and almost all defendants charged with public order offences; unlawful entry with intent; illicit drugs and weapons and explosives offences (all 98%) were proven guilty (i.e. either a guilty plea or a guilty finding in the Higher Court during 2007–08 (table 13.14).

**13.15 DEFENDANTS ADJUDICATED IN HIGHER COURTS, Selected principal offences(a)(b) by sex— 2007–08**



(a) Classified according to Australian Standard Offence Classification (ASOC) 1997. (b) Includes defendants for whom offence data are missing or a principal offence could not be determined.

Source: Criminal Courts, Australia (4513.0).

### 13.16 DEFENDANTS PROVEN GUILTY IN HIGHER COURTS(a), Principal offence and sentence—2007–08

	<i>Custodial orders</i>	<i>Non-custodial orders</i>	<i>Total(c)</i>
<i>ASOC Division (b)</i>			
Homicide and related offences	360	8	368
Acts intended to cause injury	2 476	550	3 026
Sexual assault and related offences	1 398	199	1 597
Dangerous or negligent acts endangering persons	275	68	343
Abduction and related offences	87	20	107
Robbery, extortion and related offences	1 418	136	1 554
Unlawful entry with intent/burglary, break and enter	991	220	1 211
Theft and related offences	289	126	415
Deception and related offences	639	124	763
Illicit drug offences	2 196	363	2 559
Weapons and explosives offences	150	31	181
Property damage and environmental pollution	213	94	307
Public order offences	179	115	294
Road traffic and motor vehicle regulatory offences	4	3	7
Offences against justice procedures, government security and operations	173	57	230
Miscellaneous offences	144	82	226
<b>All offence categories(d)</b>	<b>11 002</b>	<b>2 201</b>	<b>13 203</b>

(a) Includes organisations and defendants with unknown age and/or sex.

(b) Classified according to Australian Standard Offence Classification (ASOC) 1997.

(c) Includes defendants for whom a principal sentence is unknown.

(d) Includes defendants for whom offence data are missing or a principal offence could not be determined.

Source: Criminal Courts, Australia (4513.0).

In the Higher Courts, the most prevalent principal offences for both male and female adjudicated defendants were acts intended to cause injury (23% of males and 22% of females), and illicit drugs (18% of males and 21% of females). Proportionally, more females were adjudicated for the principal offence of deception (17%) than were males (4%). In contrast, there were proportionally more males than females with a principal offence of sexual assault (16% and 2% respectively) (graph 13.15).

#### Defendants proven guilty – principal sentence

Defendants proven guilty in the Higher Courts predominantly received custodial orders (i.e. custody in a correctional institution or the community or fully suspended sentences) (83%) (table 13.16).

Defendants proven guilty in the Higher Courts for homicide, robbery/extortion, and sexual assault offences incurred the highest proportion of custodial orders (98%, 91% and 88% respectively). Defendants proven guilty for road traffic and public order offences incurred the

highest proportion of non-custodial sentences (43% and 39% respectively).

## Magistrates' Courts

### Adjudicated defendants – principal offence

Road traffic offences accounted for the greatest proportion (45% or 256,963) of defendants adjudicated in the Magistrates' Courts in 2007–08. After road traffic offences, the largest proportion of defendants were charged with: public order offences (11%); dangerous or negligent acts endangering persons (9%); acts intended to cause injury (8%); offences against justice procedures, government security and government operations (6%) and illicit drug offences (5%).

Nationally, 96% (541,497) of adjudicated defendants were proven guilty in the Magistrates' Courts, while 4% (24,330) were acquitted.

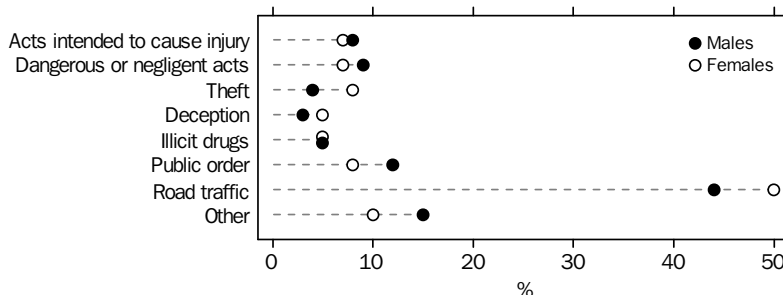
Defendants adjudicated in the Magistrates' Courts were most likely to be acquitted for abduction (39%), homicide (37%) and sexual assault (20%) offences.

### 13.17 DEFENDANTS ADJUDICATED IN MAGISTRATES' COURTS, Principal offence—2007–08

	Acquitted	Proven guilty	Total adjudicated
Homicide and related offences	36	61	97
Acts intended to cause injury	4 123	39 063	43 186
Sexual assault and related offences	202	819	1 021
Dangerous or negligent acts endangering persons	536	49 429	49 965
Abduction and related offences	13	20	33
Robbery, extortion and related offences	45	241	286
Unlawful entry with intent/burglary, break and enter	229	7 031	7 260
Theft and related offences	851	28 235	29 086
Deception and related offences	443	17 606	18 049
Illicit drug offences	302	29 146	29 448
Weapons and explosives offences	120	7 610	7 730
Property damage and environmental pollution	438	13 770	14 208
Public order offences	6 836	55 054	61 890
Road traffic and motor vehicle regulatory offences	8 229	248 734	256 963
Offences against justice procedures, government security and government operations	1 092	30 286	31 378
Miscellaneous offences	809	13 757	14 566
<b>Total (a)</b>	<b>24 330</b>	<b>541 497</b>	<b>565 827</b>

(a) Includes defendants for whom offence data are missing or a principal offence could not be determined.  
Source: Criminal Courts, Australia (4513.0).

### 13.18 DEFENDANTS ADJUDICATED IN MAGISTRATES' COURTS, Principal offences(a)(b) by sex—2007–08



(a) Classified according to Australian Standard Offence Classification (ASOC) 1997. (b) Includes defendants for whom offence data are missing or a principal offence could not be determined.

Source: Criminal Courts, Australia (4513.0).

The principal offences with the highest proportion of defendants proven guilty in the Magistrates' Courts were illicit drug offences and dangerous or negligent acts endangering persons (both 99%) and weapons and explosive and deception offences (both 98%) (table 13.17).

In the Magistrates' Courts, road traffic offences accounted for 44% of adjudicated male defendants and half (50%) of all female adjudicated defendants. Public order offences accounted for 12% of male and 8% of female adjudicated defendants, while dangerous or

negligent acts endangering persons accounted for 9% of male and 7% of female adjudicated defendants.

Theft and deception offences both had higher proportions of female adjudicated defendants than male adjudicated defendants. Theft offences comprised 8% of female and 4% of male adjudicated defendants, while deception offences comprised 5% of female and 3% of male adjudicated defendants (graph 13.18).



**13.19 DEFENDANTS PROVEN GUILTY IN MAGISTRATES' COURTS(a), Principal offence and sentence—2007–08**

	<i>Custodial orders</i>	<i>Non-custodial orders</i>	<i>Total(c)</i>
<i>ASOC Division(b)</i>			
Homicide and related offences	21	40	61
Acts intended to cause injury	10 550	28 448	39 063
Sexual assault and related offences	343	461	820
Dangerous or negligent acts endangering persons	3 134	46 277	49 429
Abduction and related offences	5	15	20
Robbery, extortion and related offences	159	76	241
Unlawful entry with intent/burglary, break and enter	3 573	3 441	7 031
Theft and related offences	4 590	23 597	28 235
Deception and related offences	3 213	14 367	17 606
Illicit drug offences	2 390	26 737	29 146
Weapons and explosives offences	1 028	6 574	7 610
Property damage and environmental pollution	1 006	12 738	13 770
Public order offences	1 068	53 927	55 054
Road traffic and motor vehicle regulatory offences	10 531	237 890	248 734
Offences against justice procedures, government security and operations(d)	2 819	27 422	30 286
Miscellaneous offences	1 055	12 675	13 757
<b>All offence categories(e)</b>	<b>45 657</b>	<b>495 148</b>	<b>541 498</b>

(a) Includes organisations and defendants with unknown age and/or sex.

(b) Classified according to Australian Standard Offence Classification (ASOC) 1997.

(c) Includes defendants for whom a principal sentence is unknown.

(d) For Queensland Magistrates' Courts, includes assault on police.

(e) Includes defendants for whom offence data are missing or a principal offence could not be determined.

Source: Criminal Courts, Australia (4513.0).

### Defendants proven guilty – principal sentence

In 2007–08, defendants proven guilty in the Magistrates' Courts predominantly received non-custodial orders (e.g. community supervision, monetary orders, good behaviour bonds) (91%). The exception was for robbery/extortion and unlawful entry with intent offences, where 66% and 51% of defendants proven guilty received custodial sentences respectively (table 13.19).

### Children's Courts

#### Adjudicated defendants – principal offence

The main offences that defendants were adjudicated for in the Children's Courts during 2007–08 were: acts intended to cause injury (16%); theft (14%); unlawful entry with intent (12%); deception; and road traffic offences (both 11%).

Nationally, 96% (30,742) of adjudicated defendants were proven guilty in the Children's Courts and 4% (1,246) were acquitted.

Higher proportions of acquittals occurred for defendants charged with homicide (25%), sexual assault (11%) and acts intended to cause injury (7%).

The principal offences with the highest proportion of defendants proven guilty were for: dangerous or negligent acts endangering persons; deception; illicit drugs; weapons and explosives; and road traffic offences (all 98%) (table 13.20).

There was variation for some offence types in the proportion of male and female defendants adjudicated in the Children's Courts. Adjudicated males had higher proportions than adjudicated females for the following offences: unlawful entry with intent (14% of males, 5% of females); property damage (7% of males, 4% of females); and dangerous or negligent acts endangering persons (6% of males, 4% of females).

Proportionally, there were more female defendants charged for the following offences than male defendants: deception (20% of females and 8% of males); acts intended to cause injury (19% of females, 15% of males); and theft (16% of females, 13% of males) (graph 13.21).

### 13.20 DEFENDANTS ADJUDICATED IN CHILDREN'S COURTS, Principal offence—2007–08

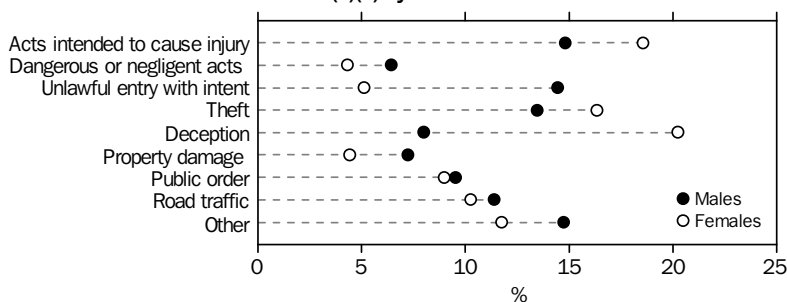
	Acquitted	Proven guilty	Total adjudicated
Homicide and related offences	4	12	16
Acts intended to cause injury	333	4 659	4 992
Sexual assault and related offences	37	298	335
Dangerous or negligent acts endangering persons	29	1 886	1 915
Abduction and related offences	—	11	11
Robbery, extortion and related offences	75	1 297	1 372
Unlawful entry with intent/burglary, break and enter	101	3 872	3 973
Theft and related offences	168	4 304	4 472
Deception and related offences	52	3 347	3 399
Illicit drug offences	10	631	641
Weapons and explosives offences	9	454	463
Property damage and environmental pollution	102	1 973	2 075
Public order offences	189	2 781	2 970
Road traffic and motor vehicle regulatory offences	62	3 500	3 562
Offences against justice procedures, government security and government operations	44	853	897
Miscellaneous offences	31	721	752
<b>Total (a)</b>	<b>1 246</b>	<b>30 742</b>	<b>31 988</b>

— nil or rounded to zero (including null cells)

(a) Includes defendants for whom offence data are missing or a principal offence could not be determined.

Source: Criminal Courts, Australia (4513.0).

### 13.21 DEFENDANTS ADJUDICATED IN CHILDREN'S COURTS, Principal offences(a)(b) by sex—2007–08



(a) Classified according to Australian Standard Offence Classification (ASOC) 1997. (b) Includes defendants for whom offence data are missing or a principal offence could not be determined.

Source: Criminal Courts, Australia (4513.0).

#### Defendants proven guilty – principal sentence

Defendants proven guilty in the Children's Courts predominantly received non-custodial orders (e.g. community supervision, monetary orders, good behaviour bonds) (91%), except for homicide (64% custodial) and abduction offences (50% custodial) (table 13.22).

#### Corrective services and juvenile justice supervision

Corrective services agencies are responsible for administering penalties handed down by criminal courts that require some form of supervision or custody of an adult offender. This may include imprisonment on either a full-time or part-time basis in a custodial facility, community service and other forms of supervised work, home detention, or good behaviour bonds under supervision. Most people for whom corrective

### 13.22 DEFENDANTS PROVEN GUILTY IN CHILDREN'S COURTS(a)—2007–08

	SENTENCE		
	Custodial orders	Non-custodial orders	Total(c)
<i>Principal Offence</i> (b)			
Homicide and related offences	7	4	11
Acts intended to cause injury	787	3 866	4 659
Sexual assault and related offences	87	208	299
Dangerous or negligent acts endangering persons	39	1 845	1 884
Abduction and related offences	5	5	10
Robbery, extortion and related offences	432	860	1 295
Unlawful entry with intent/burglary, break and enter	701	3 170	3 871
Theft and related offences	258	4 040	4 304
Deception and related offences	24	3 317	3 347
Illicit drug offences	32	597	632
Weapons and explosives offences	44	409	453
Property damage and environmental pollution	104	1 866	1 970
Public order offences	26	2 750	2 780
Road traffic and motor vehicle regulatory offences	22	3 473	3 500
Offences against justice procedures, government security and operations	20	831	854
Miscellaneous offences	28	691	719
<b>All offence categories</b> (d)	<b>2 616</b>	<b>28 074</b>	<b>30 730</b>

(a) Includes organisations and defendants with unknown age and/or sex.

(b) Classified according to Australian Standard Offence Classification (ASOC) 1997.

(c) Includes defendants for whom a principal sentence is unknown.

(d) Includes defendants for whom offence data are missing or a principal offence could not be determined.

Source: Criminal Courts, Australia (4513.0).

services have responsibility have received a sentence from a criminal court. Corrective service agencies may also be responsible for people prior to hearing or sentencing. Unsentenced persons may be held on remand in correctional facilities or be subject to supervised bail or similar community-based court orders.

All states and territories operate adult prisons and other types of corrective services. As at 30 June 2008, across Australia, corrective services operated 119 custodial facilities nationally, comprising: 87 government-operated prisons and seven privately-operated prisons; three government-operated community custodial facilities; eight periodic detention centres; and 14 '24-hour' court-cell complexes (holding prisoners under the responsibility of corrective services in New South Wales).

Prior to March 2009, adult persons sentenced to full-time custody by the Australian Capital Territory were usually held in New South Wales prisons, whilst adult unsentenced prisoners, periodic detainees, and people under the supervision of community corrections (e.g. probation and parole) were managed locally. From March 2009 Australian Capital Territory

adult persons sentenced to full-time custody are held in the Australian Capital Territory.

The Australian Government does not operate any prisons or other corrective services, as federal offenders (persons convicted of offences under Commonwealth laws) are supervised by state or territory agencies for correctional purposes.

In all states and territories except Queensland, persons remanded or sentenced to adult custody or community-based corrections are aged 18 years and over. Persons under 18 years of age are treated as juveniles in most Australian courts and are only remanded or sentenced to custody in adult prisons in exceptional circumstances. In Queensland, adults are deemed aged 17 years and over.

Separate provisions exist in each state and territory for the administration of juvenile offenders that require some form of supervision or custody. Juvenile offenders are aged between 10 years (the age of criminal responsibility) and up to 18 years of age, except in Queensland. Persons older than 18 may be held under juvenile justice supervision if they: committed an offence while 17 or under; entered supervision while 17 or under and remain in that system rather than

be transferred to adult corrective services; or a person is especially vulnerable or immature and such a measure is deemed appropriate. In Queensland juveniles are aged less than 17 years of age.

## People in custody

### Adult prisoners

The annual National Prisoner Census, conducted on the night of 30 June, counts all people held in Australian prisons that are in the legal custody of adult corrective services, including periodic detainees in New South Wales and the Australian Capital Territory, but excluding persons held in juvenile institutions, psychiatric custody and police custody. At any given point in time, most prisoners are serving long sentences for relatively serious offences, but the flow of offenders in and out of prisons consists primarily of people serving short sentences for less serious offences.

At 30 June 2008, there were 27,615 prisoners (sentenced and unsentenced) in Australian adult prisons. This represented an imprisonment rate of 169 prisoners per 100,000 adult population. Of the total prisoner population, 93% (25,658) were men and 7% (1,957) were women.

Most (55% or 15,154) prisoners had served time in an adult prison prior to the current episode.

Unsentenced prisoners include prisoners awaiting a court hearing or trial and convicted prisoners awaiting sentencing. Unsentenced adult prisoners comprised 23% (6,340) of the total prisoner population.

Acts intended to cause injury was the most serious offence/charge which accounted for the largest proportion of adult prisoners (18% or 5,008 prisoners).

There were 6,706 Indigenous prisoners at 30 June 2008, comprising 24% of the total prisoner population. The age-standardised Indigenous imprisonment rate was 1,769 prisoners per 100,000 adult Indigenous population, 13 times more than the non-Indigenous rate (133 prisoners per 100,000 adult non-Indigenous population) (table 13.23).

The median age of male prisoners was 33 years, and 34 years for female prisoners.

The 20–29 year age group had the highest proportion of male prisoners (35% or 8,903 men), while the corresponding age group for women

**13.23 ADULT PRISONERS, Selected characteristics by most serious offence/charge—30 June 2008**

		<i>Homicide and related offences</i>	<i>Acts intended to cause injury</i>	<i>Sexual assault and related offences</i>	<i>Robbery, extortion and related offences</i>	<i>Unlawful entry with intent</i>	<i>Illicit drug offences</i>	<i>Other offences(a)</i>	<i>Total(a)</i>
All prisoners	no.	2 712	5 008	3 411	2 682	3 138	2 885	7 779	27 615
Males	no.	2 499	4 673	3 381	2 550	2 951	2 586	7 018	25 658
Females	no.	213	335	30	132	187	299	761	1 957
Indigenous	no.	429	2 107	715	597	927	112	1 819	6 706
Non-Indigenous	no.	2 263	2 856	2 682	2 063	2 202	2 694	5 901	20 661
Unknown	no.	20	45	14	22	9	79	59	248
Median age									
Males	years	38	30	43	29	30	37	33	33
Females	years	37	31	42	28	29	37	35	34
Indigenous	years	35	30	36	27	27	35	30	30
Non-Indigenous	years	39	31	45	29	31	37	34	35
Sentenced	no.	2 220	3 357	2 880	1 988	2 404	2 076	6 350	21 275
Unsentenced	no.	492	1 651	531	694	734	809	1 429	6 340
Prior imprisonment(b)	no.	1 063	3 089	1 186	1 617	2 337	1 003	4 859	15 154
No prior imprisonment(b)	no.	1 649	1 919	2 225	1 065	801	1 882	2 920	12 461

(a) Includes Australian Standard Offence Classification Divisions 04, 05, 08, 09 and 11 to 16.

(b) Refers to prior imprisonment under sentence. Source: Prisoners in Australia (4517.0).



Source: *Prisoners in Australia* (4517.0).

was 30–39 years (35% or 676 women) (graph 13.24).

### Most serious offence

At 30 June 2008, six offence types accounted for 71% of adult sentenced prisoners: acts intended to cause injury (16%); sexual assault and related offences (14%); unlawful entry with intent (11%); homicide and related offences; illicit drug and related offences; and offences against justice procedures (all 10%) (table 13.25).

There were notable differences in some most serious offence types for which men and women were imprisoned. Though similar proportions of male and female prisoners had homicide and related offences as their most serious offence (10% and 11% respectively), the proportion of male prisoners was higher than that for women prisoners for sexual assault and related offences (14% of male prisoners, 2% of female prisoners) and robbery, extortion and related offences (10% of male prisoners, 6% of female prisoners). There were higher proportions of women prisoners

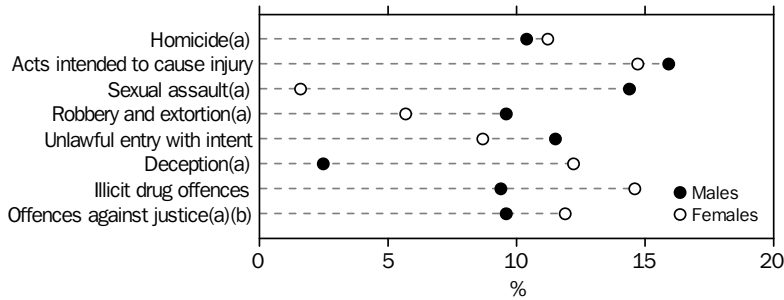
### 13.25 SENTENCED PRISONERS, By most serious offence—30 June 2008

	Males	Females	Persons
Homicide and related offences	2 062	158	2 220
Acts intended to cause injury	3 150	207	3 357
Sexual assault and related offences	2 857	23	2 880
Dangerous or negligent acts endangering persons	368	15	383
Abduction and related offences	143	11	154
Robbery, extortion and related offences	1 907	81	1 988
Unlawful entry with intent/burglary, break and enter	2 281	123	2 404
Theft and related offences	737	118	855
Deception and related offences	489	172	661
Illicit drug offences	1 870	206	2 076
Weapons and explosives offences	140	5	145
Property damage and environmental pollution	225	18	243
Public order offences	239	19	258
Road traffic and motor vehicle regulatory offences	1 259	65	1 324
Offences against justice procedures, government security and government operations	1 898	168	2 066
Miscellaneous offences	236	21	257
Unknown	4	—	4
<b>Total</b>	<b>19 865</b>	<b>1 410</b>	<b>21 275</b>

— nil or rounded to zero (including null cells)

Source: *Prisoners in Australia* (4517.0).

**13.26 SENTENCED PRISONERS, By selected most serious offence—30 June 2008**



(a) Includes related offences. (b) Includes offences against justice procedures, government security and operations.

Source: *Prisoners in Australia* (4517.0).

than male prisoners for the following offence types: deception and related offences (12% of women prisoners, 3% of male prisoners); and illicit drug offences (15% of women prisoners, 9% of male prisoners) (graph 13.26).

### Sentence length

Aggregate length of sentence is derived by taking into account the longest period for which a convicted prisoner may be detained as a result of a sentence or sentences imposed by a criminal court for an offence or multiple offences in a current episode.

At 30 June 2008, the average aggregate sentence length for all adult prisoners sentenced to a specific term was 59.1 months or nearly 5 years, while the average expected time to serve was 42.3

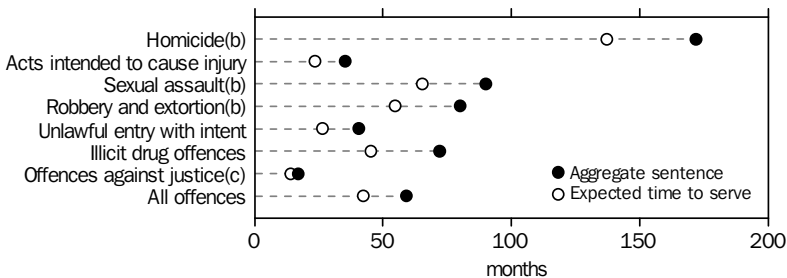
months or 3.5 years. The average aggregate sentence length excludes prisoners who receive indeterminate, life with a minimum, or periodic detention sentences, whilst the expected time to serve takes into account the earliest date of release for sentenced prisoners (graph 13.27).

### Young people in detention

The Australian Institute of Health and Welfare (AIHW) collects information from each state and territory on behalf of the Australasian Juvenile Justice Administrators about the numbers and characteristics of young people under the supervision of juvenile justice agencies.

Excluding New South Wales, in 2007–08, 3,378 young people were held in juvenile detention. Most detainees (84%) were male. Just under half

**13.27 SENTENCED PRISONERS, By average sentence length(a)—30 June 2008**



(a) Prisoners with indeterminate, life and periodic detention sentences are excluded from these calculations. (b) Includes related offences. (c) Includes offences against justice procedures, government security and operations.

Source: *Prisoners in Australia* (4517.0).

**13.28 YOUNG PERSONS IN DETENTION(a)(b), By combined selected states and territories(b)—2007–08**

	<i>no.</i>
All young people	3 378
Males	2 831
Females	547
Indigenous	1 591
Non-Indigenous	1 743
Unknown	44
Sentenced	986
Unsentenced	2 939
Both sentenced and unsentenced	85

- (a) As young people may have appeared more than once during the financial year, components may not sum to totals.
- (b) Data excludes New South Wales, as data were not available.

Source: AIHW (2009) *Juvenile Justice in Australia, 2007–08*. Cat. No. JUV5.

of the young detainee population were identified as Indigenous. Note, a young person may have been in custody more than once during the reference period (table 13.28).

## Community-based corrections

Community-based corrections orders are non-custodial orders issued to offenders by criminal courts. Both adult and young offenders can be issued with community corrections orders and these are administered by agencies with the authority to serve these orders.

### Adult community-based orders

Adult community-based orders are served under the authority of adult corrective services agencies and include restricted movement, reparations (fine option and community service) and supervision orders (parole, bail and sentenced probation). Quarterly data are sourced by the ABS from state and territory corrective services agencies.

On average there were 56,366 people in adult community-based corrections in Australia during the June quarter 2009. This equated to a rate of 338 people per 100,000 adult persons in community-based corrections. The most common community-based corrections orders issued were sentenced probation (34,310 people), followed by parole (12,363 people) and community service (10,347 people) (table 13.29).

Men were almost five times more likely to be in adult community-based corrections than women. The rate for men was 561 per 100,000 adult male population, while for women it was 120 per 100,000 adult female population.

### Young people under community-based supervision

In 2007–08, the average daily number of young people under juvenile community-based supervision was 4,084. The most common type of order was probation or similar orders, with a daily average of 3,145 young people. Data are sourced from the Juvenile Justice National Minimum Dataset collected by the AIHW (table 13.30).

## Deaths in custody

In 1991 the Royal Commission into Aboriginal Deaths in Custody investigated the deaths of 99 Indigenous people that occurred in police or prison custody between January 1980 and May 1989. One of the outcomes was the establishment of a National Deaths in Custody Monitoring and Research Program at the Australian Institute of Criminology.

During 2007, 74 people died in all forms of custody in Australia, an increase of 19 deaths from 2006. Of this total 12% or 9 people were Indigenous. The largest number of deaths in custody recorded since 1990 was in 1997 (105), while the largest number of deaths of Indigenous people was in 1995 (22) (table 13.31).

**13.29 ADULT PERSONS IN COMMUNITY-BASED SUPERVISION(a)—June Qtr 2009**

<i>Type of order</i>	<i>no.</i>
Restricted movement	690
Reparation	
Fine option	3 186
Community service	10 347
Supervision (compliance)	
Parole	12 363
Bail	1 599
Sentenced probation	34 310
<b>Total</b>	<b>56 366</b>

- (a) If a person has more than one type of order, they are counted against each order. If a person has more than one order of the same type, they are counted only once in the order type.

Source: Corrective Services, Australia (4512.0).

### 13.30 YOUNG PERSONS IN COMMUNITY-BASED SUPERVISION(a)(b)—2007–08

Type of order	Average daily no.
Immediate release/suspended detention	389
Parole/supervised release	222
Probation or similar	3 145
Supervised bail or other unsentenced supervision	325
Other(c)	6
<b>Total</b>	<b>4 084</b>

(a) Excludes New South Wales as data were not available.

(b) As a person may have had more than one order type during the same day, the sum of the components may be greater than the total.

(c) Other includes home detention and other order types not elsewhere classified.

Source: AIHW (2009) Juvenile Justice in Australia, 2007–08, Cat. No. JUV5.

### 13.31 DEATHS IN CUSTODY

	POLICE		PRISON		TOTAL		Total(a)
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	
1990	5	26	5	28	10	54	65
1991	5	26	8	31	13	57	70
1992	7	24	2	34	9	58	67
1993	3	30	7	42	10	72	83
1994	3	25	11	42	14	67	82
1995	4	22	18	41	22	63	87
1996	6	23	12	40	18	63	82
1997	6	23	9	67	15	90	105
1998	6	21	10	59	16	80	97
1999	6	21	13	46	19	67	86
2000	5	21	11	51	16	72	90
2001	4	31	14	43	18	74	92
2002	11	26	8	42	19	68	87
2003	8	28	10	30	18	58	76
2004	8	23	7	32	15	55	70
2005	8	15	7	27	15	42	57
2006	6	17	4	27	10	44	55
2007	4	25	5	40	9	65	74

(a) Includes deaths that occurred in custody other than police or prison custody (such as juvenile detention).

Source: Australian Institute of Criminology, National Deaths in Custody Program 1990–2007 (computer file).



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# Personal fraud

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Personal fraud has been recognised as a crime type that is a growing threat to the community, as a result of the rapid expansion and availability of internet technology and the increase in electronic storage, transmission and sharing of data. Due to the wide range of commercial and government agencies with a remit to respond to various types of personal frauds and scams, it can be difficult to understand the prevalence of such incidents in the general community using available recorded crime statistics or other administrative data sources. A Personal Fraud Survey of people aged 15 years and over was conducted by the ABS during the period July to December 2007. The survey provides a national benchmark measure of the extent to which Australians were exposed to a range of personal frauds, whether they became a victim of a selected range of personal frauds and whether they incurred any financial loss as a result of being victimised.

The survey measured three key elements of personal fraud:

- people's exposure to a range of selected scams;
- whether a person was a victim of either identity fraud or a range of selected scams; and
- any financial losses incurred by victims of personal fraud during the reference period.

Diagram S13.1 shows experience of selected personal frauds for Australians aged 15 years or more in the 12 months prior to the survey.

## Victims of Personal Fraud

Personal Fraud includes identity fraud and a range of selected scams. Just over 800,000 Australians aged 15 years and over were victims of at least one incident of personal fraud in the 12 months prior to interview. This equated to a victimisation rate for personal fraud of 5% of the population aged 15 years and over.

Over half of these victims (453,100) incurred a financial loss during this period, resulting in a

combined loss of almost one billion dollars (\$977 million) as a result of personal fraud.

## Identity fraud

Identity fraud comprises bank or credit card fraud and identity theft. Theft of identity includes the fraudulent use of personal details such as a drivers licence or tax file number, without permission, or illegally appropriating another person's identity for unauthorised gain.

In the 12 months prior to the survey, 3% or nearly half a million (499,500) people in Australia were victims of identity fraud. Just over half (54%) of these victims were male, while 46% were female.

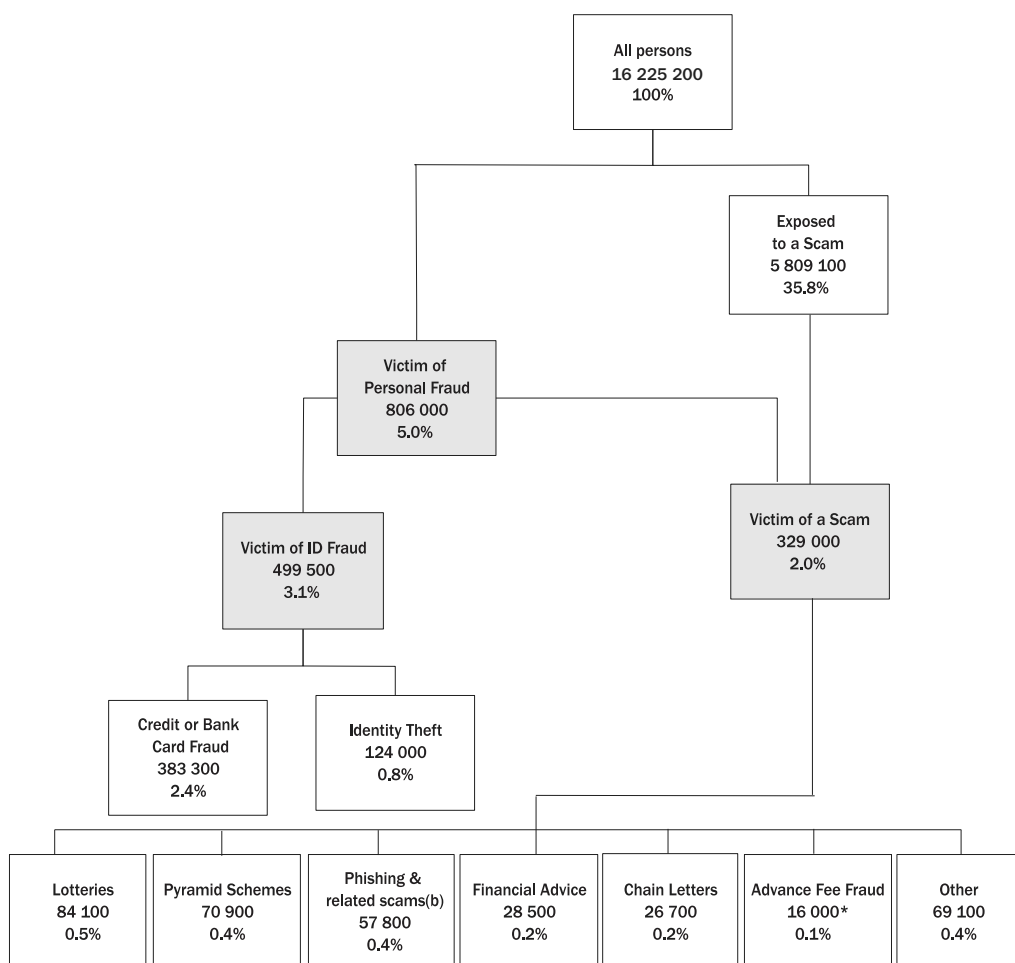
The majority (383,300 or 77%) of identity fraud victims were a victim of credit or bank card fraud. This equated to a victimisation rate of 2.4% of the population aged 15 years and over. These victims experienced at least one unauthorised, fraudulent transaction of their cards or account details. Victims of identity theft accounted for 0.8% of the population aged 15 years or over, or 124,000 victims. Note, victims of identity fraud may have experienced more than one incident of credit/bank card or identity theft, therefore these incidents may not add to the total.

All victims of credit/bank card fraud reported that they incurred a financial loss. In contrast, 16% of victims reported a financial loss as a result of the most recent incident of identity theft. Over three quarters (76%) of victims of credit/bank card fraud reported the most recent incident to a law enforcement agency, financial institution or other formal entity, while just over half (57%) of identity theft victims reported their most recent incident.

## Scams

Scams aim to elicit personal information and/or obtain a financial benefit by deceptive means such as through an invitation, request, notification or offer. The Personal Fraud Survey included the following scams: lotteries,

### S13.1 EXPERIENCE OF SELECTED PERSONAL FRAUDS(a)



\*Estimate has a relative standard error of 25% to 50% and should be used with caution.

(a) People who experienced personal frauds could have experienced more than one incident. The components when added may therefore be larger than the total.

(b) Also includes other methods, such as by phone, to obtain a person's bank account or personal details. For more information, see the glossary in *Personal Fraud, Australia, 2007 (4528.0)*.

Source: *Personal Fraud, Australia, 2007 (4528.0)*.

pyramid schemes, phishing and related scams, financial advice, chain letters and advance fee fraud.

#### Exposure to scams

Over 5.8 million Australians were exposed to a range of selected scams in the 12 months prior to the survey. This involved people receiving and viewing or reading an unsolicited invitation, request, notification or offer, designed to obtain their personal information

or money or otherwise obtain a financial benefit by deceptive means.

#### Victims of scams

A successful scam requires an engagement or response from a person to an unsolicited invitation, request, notification or offer. Of those who had been exposed to a fraudulent invitation or request, 329,000 people (6%) became victims by responding to the scam by supplying personal information, money or

both, or seeking more information. This equated to a victimisation rate of 2% of the population aged 15 years and over.

Lotteries accounted for 84,100 victims, representing a victimisation rate of 0.5% of the population aged 15 years and over. This was followed by pyramid schemes (70,900 victims or 0.4%) and phishing and related scams (57,800 victims or 0.4%). Note a person may

have been a victim of more than one type of scam.

### **Further Information**

Further information on the Personal Fraud Survey and the statistics obtained therein, can be obtained from *Personal Fraud, Australia, 2007* (4528.0).



## CULTURE AND RECREATION

Cultural and recreational activities are important contributors to the wellbeing of individuals and communities. They take many forms including involvement in visual and performing arts, music, literature, cultural heritage, religious activities, libraries, radio, television, and sports and physical recreation.

This chapter reviews a range of cultural and recreational activities undertaken by Australians and, where available, presents a statistical summary for those activities. The chapter also presents information about the industries providing a range of cultural and recreational services in Australia.

Statistics have been drawn from surveys of households and businesses conducted by the Australian Bureau of Statistics (ABS), and also from its compilations of administrative data, such as that which provides information about government funding of arts and heritage activities. Other Australian Government organisations have contributed to some of the data presented in this chapter.

Further information on the operations of organisations referred to in this chapter, including their administrative and legislative backgrounds, may be obtained from their individual websites, the addresses of which are provided at the end of the chapter.

This chapter contains the article *Participation of migrants in culture and leisure activities*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Arts and cultural heritage

### Experiencing the arts and heritage

#### Adult participation and attendance

Attendance at arts and cultural heritage venues and events is a significant aspect of the cultural life of many Australians. The 2005–06 Survey of Attendance at Selected Cultural Venues and Events found that the vast majority of Australians (85%) visited at least one cultural venue or event in the 12 months prior to interview.

Zoological parks or aquariums, libraries and botanic gardens were the most popular heritage venues in 2005–06, all attended by more than one third of Australians aged 15 years and over. There were 5.7 million visitors to zoological parks and aquariums in 2005–06, 5.5 million at libraries, and 5.4 million at botanic gardens. Art galleries and museums both recorded an attendance rate of 23% (3.6 million people).

Attendance at cinemas was the most highly attended arts venue or event. Table 14.1 shows that 65% of the Australian population aged 15 years and over (10.4 million people) attended a cinema, drive-in or other public screening of a film at least once in the 12 months prior to interview in 2005–06. Popular music concerts were the second most attended arts venue or event in 2005–06, with a quarter of Australian adults (4.0 million people) attending. Theatre

performance and other performing arts both recorded attendance rates of 17% (or 2.7 million people), while 16% (or 2.6 million people) attended a musical or opera performance.

Residents in the Australian Capital Territory recorded the highest attendance rates for most cultural venues and events of all states and territories. However, Western Australian residents had the highest attendance rate at zoos and aquariums, and South Australian residents had the highest rate at other performing arts and libraries.

Attendance rates for females tended to be higher than for males across all cultural venues and events (table 14.2). Other than cinema attendance (males 63%, females 68%), the highest attendance rate for males was zoological parks and aquariums (34%), while females were most likely to visit a library (41%).

The cinema was the most highly attended cultural venue for all age groups, with attendance peaking in the 15–24 age group. Other popular venues and events for the 15–24 age group were zoological parks and aquariums, libraries and popular music concerts, all of which recorded an attendance rate of 37% in 2005–06.

People aged 25–34 and 35–44 years were more likely to attend heritage venues than arts venues or events, with high attendance rates at zoological parks and aquariums, botanic gardens

**14.1 PERSONS ATTENDING CULTURAL VENUES AND EVENTS, BY STATE AND TERRITORY, 2005–06**

	NSW	Vic.	Qld	SA	WA	Tas.	NT(a)	ACT	Australia
	ATTENDANCE RATE (%)								
<b>Heritage</b>									
Art galleries	20.8	23.9	22.0	24.0	22.8	24.0	25.9	39.7	22.7
Museums	21.3	20.9	21.7	26.9	22.2	30.8	38.2	47.3	22.6
Zoological parks and aquariums	33.2	37.0	33.2	37.9	43.4	31.6	36.0	41.4	35.6
Botanic gardens	28.3	36.7	37.2	36.5	33.4	32.3	38.8	44.4	33.7
Libraries(b)	31.9	33.2	35.1	40.3	36.7	35.6	28.1	34.9	34.1
<b>Arts</b>									
Classical music concerts	9.7	9.3	8.2	9.7	10.8	9.3	*7.9	13.3	9.4
Popular music concerts	23.9	23.6	25.8	26.2	30.8	24.1	29.5	34.1	25.2
Theatre performances	16.9	17.9	15.2	17.6	16.8	19.5	12.1	25.5	17.0
Dance performances	10.9	9.9	8.7	11.2	9.7	7.5	*9.6	16.6	10.2
Musicals and operas	16.6	18.4	15.4	13.0	14.8	15.3	9.4	19.1	16.3
Other performing arts	15.3	16.7	16.4	20.5	17.6	16.9	14.8	19.7	16.6
Cinemas	62.9	67.1	66.8	64.0	66.6	56.4	68.2	71.3	65.2
<b>At least one venue or event</b>	<b>82.9</b>	<b>84.9</b>	<b>86.3</b>	<b>85.1</b>	<b>87.6</b>	<b>81.5</b>	<b>89.2</b>	<b>89.8</b>	<b>84.8</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Includes predominantly urban areas only.

(b) National, state or local government libraries only.

Source: Attendance at Selected Cultural Venues and Events, Australia, 2005–06 (4114.0).

**14.2 ATTENDANCE AT CULTURAL VENUES AND EVENTS(a), Attendance rates(b)—by sex and age groups—2005–06**

	SEX			AGE GROUP (YEARS)					
	Males	Females	Persons	15-24	25-34	35-44	45-54	55-64	65 and over
	ATTENDANCE RATE (%)								
Heritage									
Art galleries	19.9	25.4	22.7	19.2	22.5	23.4	26.6	25.8	18.8
Museums	21.7	23.4	22.6	18.5	23.6	27.2	25.1	24.9	15.5
Zoological parks and aquariums	33.7	37.5	35.6	37.4	46.5	46.0	32.0	31.0	17.5
Botanic gardens	31.0	36.3	33.7	26.4	37.6	35.9	35.2	37.4	29.8
Libraries(c)	26.7	41.2	34.1	37.4	32.7	37.3	33.6	30.3	31.9
Arts									
Popular music concerts	24.8	25.6	25.2	37.4	30.9	25.1	26.5	18.7	10.0
Classical music concerts	8.2	10.6	9.4	6.1	7.0	8.3	12.4	12.8	10.8
Dance performances	6.9	13.3	10.2	11.4	9.4	12.3	12.8	8.5	5.6
Musicals and operas	12.0	20.6	16.3	15.0	13.6	17.0	19.0	19.9	14.0
Theatre performances	13.1	20.8	17.0	18.4	15.4	15.5	20.3	20.1	12.6
Other performing arts	14.8	18.3	16.6	17.3	19.0	19.3	17.3	15.9	9.6
Cinemas	62.5	67.7	65.2	87.0	75.7	68.6	62.7	55.6	36.6

- (a) Attendance at least once in the twelve months prior to interview.  
 (b) An attendance rate is the number of people who attended, expressed as a percentage of the number of people in that population group.

- (c) National, state or local government libraries only.  
 Source: Attendance at Selected Cultural Venues and Events, Australia, 2005–06 (4114.0).

and libraries. The most popular arts event for these age groups was popular music concerts, followed by other performing arts.

Heritage venues were also generally more popular than arts venues in the 45–54 and 55–64 age groups. Botanic gardens were the most popular venue in these age groups, closely followed by libraries and zoological parks and aquariums. Popular music concerts were also highly attended in the 45–54 age group.

People aged 65 and over were most likely to attend libraries (32%), botanic gardens (30%) or art galleries (19%).

**Participation and attendance by children**

The 2009 Survey of Children's Participation in Cultural and Leisure Activities found that in the 12 months to April 2009, just over one in three children aged 5–14 years (916,300 children) participated in at least one selected organised cultural activity outside school hours, such as playing a musical instrument, or participating in dancing, singing or drama. The same survey showed that 71% of children (1.9 million) attended at least one selected cultural venue or event, such as a public library, museum or art gallery, or performing arts event.

Overall, participation rates for children in at least one cultural activity did not change significantly between 2006 and 2009. The more notable increases in attendance rates between 2006 and 2009 were for museums or art galleries, which increased from 37% in 2006, to 41% in 2009, and attending performing arts events (30% in 2006 compared with 34% in 2009) (table 14.3).

Table 14.4 shows that in the 12 months prior to interview in 2009, involvement in each of the arts and cultural heritage activities varied by sex. For example, 26% of girls were involved in dancing compared with 3% of boys.

Girls had generally higher attendance at cultural venues and events. The attendance rate for girls at performing arts events (38%) was significantly higher than for boys (29%) in 2009. Attendance rates at public libraries were also higher for girls (56%) than for boys (52%). In contrast, there was no significant difference in the proportion of girls and boys visiting museums and art galleries in the same 12 month period.

An estimated 45% of girls and 23% of boys were involved in at least one of the selected cultural activities. Playing a musical instrument remained the most popular selected cultural activity for



### 14.3 CHILDRENS PARTICIPATION AND ATTENDENCE IN ARTS AND CULTURAL HERITAGE, By sex—2006 and 2009

	2006	2009	2009	2009
	Total	Male	Female	Total
PARTICIPATION RATE (%)				
Cultural venues and events				
Visited public library	55.1	51.6	55.9	53.7
Visited museum or art gallery	37.3	40.9	41.8	41.3
Attended performing arts event	30.4	29.1	38.3	33.6
<b>At least one selected venue or event</b>	<b>70.5</b>	<b>68.9</b>	<b>73.0</b>	<b>70.9</b>
Organised cultural activities				
Playing a musical instrument	19.5	18.7	20.7	19.7
Singing	5.5	3.1	9.2	6.1
Dancing	12.5	3.0	26.3	14.3
Drama	4.5	2.8	6.6	4.7
<b>At least one selected venue or event</b>	<b>32.6</b>	<b>23.0</b>	<b>44.9</b>	<b>33.7</b>

Source: Children's Participation in Cultural and Leisure Activities, Australia, April 2009 (4901.0).

### 14.4 CHILDREN'S PARTICIPATION AND ATTENDENCE IN ARTS AND CULTURAL HERITAGE, By sex and age group—2009

	AGE BY GROUP (YEARS)			
	5-8	9-11	12-14	Total
	%	%	%	%
MALE				
Cultural venues and events				
Visited public library	53.9	54.6	45.8	51.6
Visited museum or art gallery	47.7	41.4	31.6	40.9
Attended performing arts event	30.9	28.6	27.2	29.1
Organised cultural activities				
Playing a musical instrument	11.5	24.8	21.7	18.7
Singing	2.9	3.7	2.8	3.1
Dancing	3.1	3.2	2.6	3.0
Drama	2.4	3.5	2.4	2.8
FEMALE				
Cultural venues and events				
Visited public library	56.2	54.8	56.5	55.9
Visited museum or art gallery	45.8	44.5	34.1	41.8
Attended performing arts event	37.3	39.0	38.9	38.3
Organised cultural activities				
Playing a musical instrument	13.4	26.7	24.1	20.7
Singing	6.3	10.0	11.9	9.2
Dancing	31.1	26.5	19.8	26.3
Drama	4.2	7.5	8.8	6.6

Source: Children's Participation in Cultural and Leisure Activities, Australia, Apr 2009 (4901.0).

boys (19%), while dancing remained the most popular cultural activity for girls (26%).

Participation rates for singing, dancing and drama were similar for boys for all the age groups (table 14.4). However, participation rates for playing a musical instrument in the boys aged 9 to 11 age

group (25%) was more than double the boys aged 5 to 8 group (12%).

For playing a musical instrument the rate of participation for girls increased from 13% at ages 5 to 8, to 27% at ages 9 to 11. In contrast, participation rates for girls for dancing declined

## 14.5 CHILDREN'S PARTICIPATION IN SELECTED LEISURE ACTIVITIES(a), By sex—2009

	Males	Females	Persons
ATTENDANCE RATE (%)			
Skateboarding, rollerblading or riding a scooter	55.9	42.4	49.3
Bike riding	66.1	54.4	60.4
Watching TV, DVDs or videos	97.0	97.7	97.4
Other screen-based activities(b)	86.5	79.7	83.2
Art and craft	37.4	59.9	48.3
Reading for pleasure	64.6	80.2	72.2
Homework or other study	80.1	84.8	82.4
At least one selected other activity	99.8	99.7	99.7
NUMBER ('000)			
Total population aged 5–14 years	1 395.8	1 326.7	2 722.5

(a) Children aged 5 to 14 years who participated in selected activities outside of school hours during the 12 months prior to interview in April 2009.

(b) Any screen-based activities aside from watching TV, DVDs and videos. This may include, but is not limited to, using the computer or Internet, playing games on a games console or mobile phone, and creating music playlists or viewing photos on an MP3 player.

Source: Children's Participation in Cultural and Leisure Activities, Australia, Apr 2009 (4901.0).

from 31% in the 5 to 8 age group to 20% in the 12 to 14 age group.

The 2009 Survey of Children's Participation in Cultural and Leisure Activities also collected information on activities such as reading for pleasure, watching television, videos or DVDs, and playing electronic or computer games - activities which involve children experiencing products of the arts.

While participation rates were similar for boys and girls for some leisure activities (watching television, DVDs and videos and homework or other study) they varied for others (table 14.5). Boys were more likely to take part in other screen-based activities (boys 87% compared to girls 80%), riding a bike (boys 66% compared with girls 54%) and skateboarding, rollerblading or riding a scooter (boys 56% compared with girls 42%). On the other hand, girls were more likely to participate in reading for pleasure (80%) and art and craft activities (60%) than boys (65% and 37% respectively).

Nearly all children participated in at least one of the selected activities.

### Industry

#### Museums

Museums (including art galleries) engage in the acquisition, collection management, conservation, interpretation, communication and exhibition of heritage objects and artefacts.

Heritage objects include those that inform people about natural science, applied science, history, transport, art and other cultures. The Collections Australia Network (CAN) website provides access to a database of information on national, state, territory, regional and local museums. CAN includes a searchable database of objects from collecting institutions across Australia.

At the end of June 2008 there were 180 art museums/galleries, 768 social history museums, 425 historic properties/sites and 83 other museum locations operating in Australia (table 14.6). Just under half (48%) of the locations were operated without paid employees, relying on the work of 9,889 volunteers. Volunteers were also important to museums operating with employees. The 753 museum locations with paid employees employed a total of 7,856 persons assisted by 13,537 volunteers. There were 52.5 million museum objects and artworks held by museums at the end of June 2008. However, only 5.4% of these were on display. There were 30.7 million admissions to museums during 2007–08. Art museums received income of \$396m during this time, while all the other types of museums combined received \$603m. The main source of income was government funding (\$658m) for all types of museums.

#### Libraries

The main activities of libraries are the acquisition, collection, organisation, preservation and loan of library materials such as books, magazines,

#### 14.6 MUSEUMS, AT 30 JUNE 2008

		Social history museums	Art museums / galleries	Historic properties / sites	Other museums	Total
Locations	no.	768	^ 180	^ 425	^ 83	1 456
Employment	no.	1 886	2 509	1 411	2 050	7 856
Volunteers	no.	^ 12 752	^ 3 741	^ 4 898	^ 2 035	23 426
Income	\$m	224.5	396.0	135.3	242.7	998.4
Expenses						
Labour costs	\$m	77.2	126.4	54.6	122.4	380.7
Other	\$m	123.9	181.3	63.1	111.0	479.4
Total expenses	\$m	201.1	307.7	117.8	233.5	860.1
Number of admissions '000		^ 8 778.7	^ 12 949.6	3 728.1	5 261.1	30 717.5

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution Source: Museums, Australia, 2007–08 (8560.0).

#### 14.7 PUBLIC LIBRARIES AUSTRALIA, 2007–08

		NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
<b>LIBRARIES</b>										
Fixed point	no.	372	290	321	136	232	46	32	8	1 437
Mobile	no.	22	27	19	7	1	—	—	2	78
<b>Total</b>	no.	<b>394</b>	<b>317</b>	<b>340</b>	<b>143</b>	<b>233</b>	<b>46</b>	<b>32</b>	<b>10</b>	<b>1 515</b>
<b>STAFF</b>										
Qualified librarians, FTE(a)	no.	828.5	554.2	366.9	177.2	294.9	45.1	20.2	30.2	2 317.3
Total staff, FTE(a)	no.	2 368.8	2 675.5	1 397.1	700.1	1 076.7	160.7	86.0	86.7	8 551.4
<b>PUBLIC INTERNET ACCESS(b)</b>										
Service points with Internet terminals	no.	394	317	320	134	172	45	25	9	1 416
Percentage of total service points with Internet terminals	%	100	100	94	94	74	98	78	90	93
Internet Terminals provided	no.	2 414	1 630	1 615	746	811	484	61	60	7 821
Registered library users	Persons ('000)	3 179.0	2 497.5	1 973.3	990.7	887.9	142.0	67.8	162.1	9 900.3
Expenditure on Public Library Services	Value (\$m)	282.5	190.3	165.6	66.5	96.2	15.2	4.0	10.3	830.5

— nil or rounded to zero (including null cells)

(a) FTE = Full Time Equivalent

(b) As at 30 June 2008

Source: Australian Public Libraries Statistical Report 2007–08, Public Library Services, State Library of Queensland, September 2009.

manuscripts, musical scores, maps and prints. The National Library of Australia (NLA) is the country's largest reference library and its role is to ensure that documentary resources of national significance relating to Australia and the Australian people – as well as significant non-Australian library materials – are collected, preserved and made accessible. The NLA website provides online visitors with access to information about more than 5,400 Australian libraries, their collections and services via the Australian Libraries Gateway.

As at June 2008 there were over 1,500 Public Libraries in Australia (table 14.7). Over a quarter (394) were located in New South Wales (NSW), 340 (22%) in Queensland and 317 (21%) in Victoria. There were over 9.9m registered library users in Australia and almost one third of these were registered in NSW, however the number of registered library users (per capita) was highest in South Australia with 62% (or 991,000 persons).

In 2007-08, almost all public libraries (93%) provided members of the public with internet access, with all public libraries within NSW and Victoria providing access to the internet. On

#### 14.8 SELECTED PERFORMING ARTS INDUSTRIES—2006–07

	NO.			\$M		
	<i>Businesses / organisations at end June</i>	<i>Employment at end June</i>	<i>Volunteers during the month of June</i>	<i>Total income</i>	<i>Total expenses</i>	<i>Operating profit / surplus before tax</i>
<i>Performing arts</i>						
Popular music performance	180	644	19	55.8	47.2	8.7
Symphony and choral performance	102	1 679	2 111	168.2	153.1	15.1
Drama production	143	1 580	1 137	151.8	149.2	2.5
Dance production	36	636	148	65.4	63.5	2.0
Other music and theatre production	264	2 030	3 166	292.2	269.8	22.0
<b>Total</b>	<b>726</b>	<b>6 569</b>	<b>6 582</b>	<b>733.4</b>	<b>682.7</b>	<b>50.4</b>

Source: Performing Arts, Australia, 2006–07 (8697.0).

average there were 5.5 public terminals with internet access per public library in Australia. The average was highest in Tasmania with approximately 11 such terminals per public library.

#### Performing arts

There are a range of arts and heritage industries operating within Australia, which contribute to the cultural output of the country.

The latest data on performing arts industries from the service industry surveys is from 2006–07.

At 30 June 2007, there were 726 performing arts operation businesses or organisations (table 14.8). Of these, 180 were primarily involved in popular music performance, 102 in symphony and choral performance, 143 in drama production, 36 in dance production and 264 in other music and theatre production. These 726 organisations comprised 381 for-profit businesses and 345 not-for-profit organisations. Collectively, these organisations employed 6,569 people at the end of June 2007. In addition to paid

employment, there were 6,582 volunteers during the month of June 2007.

During 2006–07, performing arts operation organisations or businesses generated a total income of \$733m and incurred total expenses of \$683m.

#### Film and video production

The film and video production industry comprises businesses mainly engaged in the production of motion pictures on film or video tape for theatre or television projection, and includes services such as casting, film editing and titling. The industry is well-developed in Australia and comprises, for the most part, small specialised companies producing programs ranging from feature films to sports coverage, documentaries and television commercials. According to Screen Australia the major market for Australian audiovisual products is the domestic television broadcast industry. However, export markets are also important for feature films and television dramas, some high-budget documentaries and some commercials.

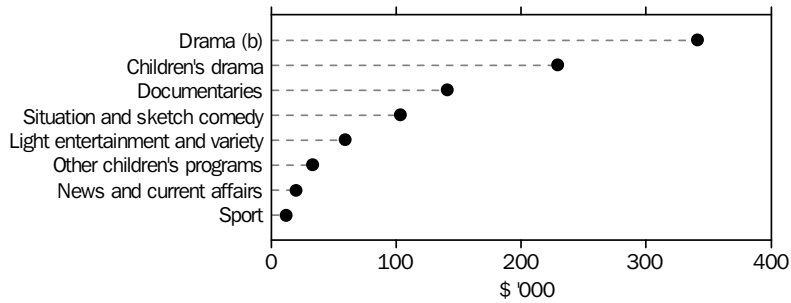
#### 14.9 TELEVISION, FILM, VIDEO PRODUCTION INDUSTRIES, 2006-07

	NO.		\$M	
	<i>Employment at end June</i>	<i>Total income</i>	<i>Total expenses</i>	<i>Operating profit surplus before tax</i>
Television(a)				
Commercial free-to-air television broadcasting	6 980	4 530.1	3 703.6	834.3
Subscription television broadcasting	3 052	2 282.6	2 449.5	-163.0
Total	10 032	6 812.7	6 153.1	671.3
Film and video production and post-production services	13 844	2 028.1	1 857.4	173.9

(a) Excludes public and community television broadcasters.

Source: Television, Film and Video Production, Australia, 2006–07 (8679.0).

**14.10 AVERAGE COST PER HOUR, By type of production(a) — 2006–07**



(a) For productions made specifically for television.  
 (b) Excludes children's programs.

Source: *Television, Film and Video Production and Post-Production Services, Australia* (8679.0).

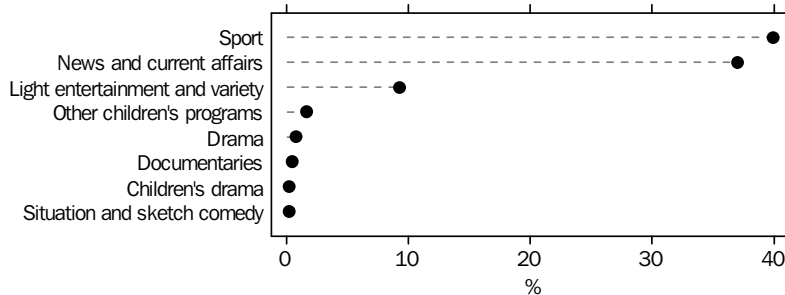
At the end of June 2007 there were 2,492 businesses primarily engaged in providing film and video production and post-production services, employing 13,844 people. The total income of these businesses for 2006–07 was \$2,028m, with 56% (\$1,132m) coming from film and video production, followed by post-production services (21.1% or \$428m), and production services (16.9% or \$344m) (table 14.9).

There were 10,032 people employed in the television broadcasting industry at the end of June 2007. These businesses earned a total income during 2006–07 of \$6,813m with expenses totalling \$6,153m. This produced an operating profit/ surplus before tax of \$671m.

During 2006–07, businesses undertaking television, film and video production incurred \$1,882m in production costs. Productions made specifically for television accounted for most of this amount (\$1,366m or 73%). Of these productions, the highest costs were incurred by news and current affairs programs (\$412m) and light entertainment and variety (\$306m). However, these types of programs were among the cheapest to produce on a cost-per-hour basis at \$20,000 and \$59,300 respectively. These figures contrast starkly with the corresponding figures for drama (\$341,500 per hour), children's drama (\$229,200) and documentaries (\$140,900) (graph 14.10).

Commercial broadcast hours represent the airtime of completed first release programs, including commercial breaks. Program re-runs are

**14.11 FIRST RELEASE COMMERCIAL BROADCAST HOURS, By type of production(a) — 2006–07**



(a) For productions made specifically for television.

Source: *Television, Film and Video Production and Post-Production Services, Australia* (8679.0).

excluded. In 2006-07 there were 55,546 commercial broadcast hours for first release productions made primarily for television. Sport accounted for the highest number of broadcast hours with 22,181 hours (40%), followed by news and current affairs with 20,556 hours (37%) (graph 14.11).

## Employment and other involvement

The 2006 Census of Population and Housing provides information on the number and characteristics of people aged 15 years and over whose main job in the week prior to the Census was in a heritage or arts occupation. People who had unpaid involvement in heritage or arts activities - or who worked part time in these activities but had another job they regarded as their main job in the week prior to the Census - were not recorded in the Census as having heritage arts occupations.

## Employment

The 2006 Census found that 284,793 people had their main (paid) job in a cultural occupation. Of this number, the majority, 224,040 (79%) worked in an arts occupation, compared to 35,573 (12%) who worked in a heritage occupation and 25,180 (9%) who worked in an other cultural occupation not attributable to heritage or arts.

Of the people who reported having a heritage occupation, 75% were females. Females were more highly represented in most selected heritage occupations apart from environmental manager, gallery or museum technician and park ranger.

In contrast, the Census showed that the majority of people who held an arts occupation as their main (paid) job, were male (58%). Males were more heavily represented in almost all arts occupations apart from music teacher (private tuition).

### 14.12 PERSONS EMPLOYED IN CULTURAL OCCUPATIONS, By sex—2006

	Males	Females	Persons
NUMBER			
Heritage(a)			
Archivist	331	565	896
Arts Administrator or Manager	567	1 173	1 740
Conservator	129	255	384
Environmental Manager	1 149	463	1 612
Gallery or Museum Curator	351	620	971
Gallery or Museum Guide	370	769	1 139
Gallery or Museum Technician	164	84	248
Librarian	1 658	8 422	10 080
Library Assistant	1 174	7 081	8 255
Library Technician	727	5 781	6 508
Park Ranger	1 551	427	1 978
<i>Total Heritage</i> (b)	9 059	26 514	35 573
Arts(a)			
Graphic Designer	11 320	11 018	22 338
Architect	10 195	3 088	13 283
Architectural Draftsperson	6 847	1 936	8 783
Printing Machinist	6 705	647	7 352
Photographer	4 540	3 002	7 542
Urban and Regional Planner	4 472	3 030	7 502
Musician	4 443	1 460	5 903
Print Journalist	3 202	3 104	6 306
Media Producer	3 195	2 400	5 595
Music Teacher (private tuition)	3 159	6 130	9 289
<i>Total Arts</i> (b)	130 736	93 304	224 040
Other Cultural Occupations	15 990	9 190	25 180
<b>Total Cultural Occupations</b>	<b>155 785</b>	<b>129 008</b>	<b>284 793</b>

(a) Heritage/Arts occupations with the highest number of persons employed.

(b) Totals include other Heritage/Arts occupations not listed. Source: Census of Population and Housing, 2006.

Table 14.12 shows the number of people who were recorded as having their main (paid) job in selected heritage and arts occupations in the 2006 Census.

### **Volunteers**

Many cultural industries are run as commercial operations and are exclusively staffed by paid employees. A few industries, however, rely heavily on the assistance of volunteers. The Service Industry Surveys found that there were 23,426 people volunteering at museums during June 2008, which is more than three times the number of people who were in paid employment in the industry, during the same period. Similarly, 6,582 people undertook voluntary work in performing arts operation during June 2007, which was slightly more than the number of paid employees.

Some 6,853 people volunteered in public libraries during June 2004 (approximately one volunteer for every two paid employees). Performing arts venue operations had 1,935 people volunteering in the industry in 2007, compared to 5,876 paid employees.

### **Government support**

The Cultural Ministers Council (CMC) was established in 1984 to provide a forum for the exchange of views on issues affecting cultural activities in Australia and New Zealand. It comprises those ministers from the Australian, state and territory governments who have responsibility for the arts and cultural heritage. The corresponding minister from the New Zealand Government is also a member. Additional information about the CMC and its activities can be obtained from the website.

The Australia Council for the Arts is the Australian Government's arts funding and advisory body. The Australia Council supports young, emerging, developing and established Australian artists – and arts organisations – through diverse funding options and a range of grant programs. During 2007–08, 4,091 grant and project applications were made to the Australia Council, of which 1,736 were successful. These grants totalled \$146.9m. Around 67% of the grants, amounting to 93% of the funding, went to organisations or groups, while the remaining grants, with an average value of \$17,460, were paid directly to individual artists. Further information about the

Australia Council and its activities can be obtained from its website.

In 2007–08, total government funding for cultural activities was around \$6.3 billion (table 14.13). Of this, the Australian Government contributed \$2,359m (37%) to total cultural funding while the state and territory governments contributed \$2,952m (47%) and local governments provided \$1,000m (16%).

The Australian Government continues to allocate the majority of its cultural funding (76%) to Arts activities. In 2007–08 the Australian Government allocated \$1,788m to Arts activities and \$571m to Heritage activities. In contrast, the state and territory governments expended the majority of their funds on Heritage with \$2,266m (77%) of their total cultural funding in this area while Arts activities received \$686m or 23% of funding. In 2007-08, local government funding for both heritage and arts activities was \$1000m. This was an increase of \$75m (or 8%) on 2006–07 when local government funding was \$926m.

Radio and television services received the majority of Australian government Arts funding at \$1,353m (76%) while Other museums and cultural heritage received the majority of Heritage funding at \$232m (41%). Across all categories, the largest recipient of state and territory government funding was Environmental heritage which received \$1,345m, accounting for 46% of the total state and territory cultural funding. The majority of state and territory Arts funding was allocated to Performing arts venues which received \$235m (34%). Almost two thirds of the local government funding in 2007–08 went to libraries (\$653m).

An ABS survey of the performing arts industry, conducted in respect of 2006–07, found that government funding contributed \$166m to the income of businesses mainly involved in performing arts venue operations, and \$174m to performing arts operations. These amounts comprised 34% and 24% respectively of total income.

A survey of museums conducted in respect of 2007–08, found that funding from all levels of government contributed \$658m to the total income of museums. This amount included both current and capital funding, and funding for one-off projects. Art museums received \$258m of the funding, and other museums and historic properties/sites the remaining \$400m.

### 14.13 CULTURAL FUNDING, BY LEVEL OF GOVERNMENT, 2007–08

	Australian Government	State and territory government	Local government	Total
VALUE OF FUNDING (\$M)				
Heritage				
Art museums	58.2	178.2	51.0	287.4
Other museums and cultural heritage	232.3	365.0	33.1	630.4
Environmental heritage	121.0	1 345.4	..	1 466.4
Libraries and archives				
Libraries	65.4	317.6	653.4	1 036.4
Archives	93.8	60.1	..	153.9
Total	159.1	377.7	653.4	1 190.3
Total heritage(a)	570.7	2 266.3	..	2 837.0
Arts				
Literature and print media	27.2	8.2	..	35.4
Performing arts				
Music performance	35.3	103.1	..	138.4
Drama	31.9	23.3	..	55.3
Dance	36.8	14.4	..	51.2
Music theatre and opera	8.7	16.8	..	25.5
Other performing arts	8.4	35.1	..	43.5
Total(b)	121.2	192.7	38.1	352.0
Performing arts venues	—	235.2	..	235.2
Music composition and publishing	1.8	1.1	..	2.8
Visual arts and crafts	32.5	28.2	..	60.7
Design	0.1	3.4	..	3.4
Broadcasting, film and multimedia				
Radio and television services	1 352.7	2.3	..	1 355.0
Film and video production and distribution	115.5	91.8	..	207.3
Multimedia	3.7	6.3	..	10.0
Total	1 472.0	100.4	..	1 572.4
Other arts	133.5	116.8	..	250.2
Total arts(a)	1 788.2	685.8	..	2 474.0
Total cultural or arts services nec(a)	..	..	224.8	224.8
<b>Total government funding</b>	<b>2 358.9</b>	<b>2 952.2</b>	<b>1 000.3</b>	<b>6 311.4</b>

.. not applicable

— nil or rounded to zero (including null cells)

(a) Totals are not available at this level for local government. Totals for heritage and arts for local government are included in cultural or arts services n.e.c.

(b) Limited detailed data are available from local government. Source: Cultural Funding by Government, Australia, 2007–08 (4183.0).

## Sports and physical recreation

### Participation by adults

Australia is recognised internationally as a nation that is very much involved in sport. It is widely accepted that there are many benefits associated with participation in sport and physical activity including enjoyment, social interaction, health, personal achievement, national pride and community involvement. In many ways, sport unites and personifies the nation. Interestingly, Australians were competing internationally as

'Australia' even before Australia was federated as a nation.

The ABS conducted a household survey during the period July 2005 to June 2006 to measure participation in sport and physical recreation. The survey included sports, such as football or netball, which are usually organised by a club or association. It also included other sports and physical recreation activities which may not have been organised, such as walking for exercise.

The 2005–06 survey found 66% of the population aged 15 years and over (or 10.5 million people)



#### 14.14 PARTICIPATION IN SPORTS AND PHYSICAL RECREATION(a)—2005–06

Age group (years)	MALES		FEMALES		PERSONS	
	Number '000	Participation rate %	Number '000	Participation rate %	Number '000	Participation rate %
15–17	307.8	77.3	302.8	72.1	610.5	74.6
18–24	735.2	73.3	671.3	71.8	1 406.4	72.6
25–34	1 054.5	76.3	1 033.9	74.0	2 088.3	75.1
35–44	975.4	66.7	1 035.9	69.1	2 011.2	68.0
45–54	871.8	63.5	923.4	65.7	1 795.2	64.6
55–64	670.1	60.4	716.3	64.6	1 386.5	62.5
65 and over	591.0	50.8	652.9	48.2	1 243.9	49.4
<b>Total</b>	<b>5 205.7</b>	<b>66.0</b>	<b>5 336.4</b>	<b>65.7</b>	<b>10 542.1</b>	<b>65.9</b>

(a) Relates to persons aged 15 years and over who participated in sports or physical recreation as a player at least once during the 12 months prior to interview in the 2005-06 survey.

Source: Participation in Sports and Physical Recreation, Australia, 2005–06 (4177.0).

#### 14.15 PARTICIPATION IN SELECTED SPORT AND PHYSICAL RECREATION ACTIVITIES(a)—2005–06

	Number '000	Participation rate
		%
<b>MALES</b>		
Walking for exercise	1 298.6	16.5
Aerobics/fitness	744.5	9.4
Golf	695.6	8.8
Cycling	691.0	8.8
Swimming	633.3	8.0
Running	425.9	5.4
Tennis	389.5	4.9
Soccer (outdoor)	311.5	3.9
Cricket (outdoor)	309.7	3.9
Bush walking	248.1	3.1
<b>FEMALES</b>		
Walking for exercise	2 659.7	32.8
Aerobics/fitness	1 271.5	15.7
Swimming	814.0	10.0
Netball	387.5	4.8
Tennis	379.4	4.7
Cycling	320.7	3.9
Bush walking	271.4	3.3
Running	255.4	3.1
Yoga	248.7	3.1
Golf	179.9	2.2

(a) Relates to persons aged 15 years and over who participated in sports or physical recreation as a player at least once during the 12 months prior to interview in the 2005-06 survey.

Source: Participation in Sports and Physical Recreation, Australia, 2005–06 (4177.0).

participated as a player (rather than in a support role) at least once during the 12 months prior to interview in one or more sports or physical recreation activities (table 14.14). The participation rate was highest for the 25 to 34

year age group (75%), then declined with age to 49% for persons aged 65 years and over. The overall participation rates for males and females were very similar. However, for the 43% (6.8 million) of the population who participated at least weekly (on average), female participation (44% or 3.6 million) was higher than male participation (41% or 3.2 million).

The 2005–06 survey found that the activities which attracted the most participants during the 12 months prior to interview were walking for exercise (4.0 million people), aerobics/fitness (2.0 million), swimming (1.4 million) and cycling (1.0 million).

For both males and females, the two most popular activities were walking and aerobics/fitness. Golf was the third most popular activity for males, while for females it was swimming. Table 14.15 shows the ten sports or

#### 14.16 EXERCISE LEVEL(a)(b), By sex—2007–08

	Males	Females	Persons
	%	%	%
Sedentary	34.2	36.1	35.2
Low	33.8	40.0	36.9
Moderate	23.4	19.9	21.6
High	8.4	4.0	6.2
<b>Total(c)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

- (a) Exercise undertaken in the two weeks prior to interview.  
 (b) Relates to persons aged 15 years and over during the two weeks prior to interview in the year shown.  
 (c) Includes persons for whom level of exercise was not stated.

Source: National Health Survey, Summary of Results, Australia, 2007–08 (4364.0).

physical recreation activities in which the most men participated and the ten in which the most women participated.

The 2007–08 National Health Survey conducted by the ABS found that almost two-thirds (65%) of all adults had exercised for recreation, sport or fitness during the two weeks prior to interview, and the proportions of males and females exercising were similar. However, females were more likely to exercise at a lower level than males. The percentage of females exercising at a low level was 40% compared with 34% of males,

whereas 8.4% of males exercised at a high level compared with 4.0% of females (table 14.16).

### Participation by children

A survey of children's activities in the 12 months to April 2009 found 1.7 million children aged 5 to 14 years (63%) participated in at least one sport outside of school hours which had been organised by a school, club or association. A comparison of the data from 2003 to 2009 shows that the participation rate in organised sport did not increase significantly (62% in 2003 and 63% in 2009).

#### 14.17 CHILDREN PARTICIPATING IN ORGANISED SPORT(a)—2009

Age group (years)	NUMBER			PARTICIPATION RATE(b)		
	Males	Females	Persons	Males	Females	Persons
	'000	'000	'000	%	%	%
5–8	349.5	264.8	614.2	63.9	51.0	57.6
9–11	302.8	258.1	560.9	72.1	64.6	68.4
12–14	318.6	224.0	542.6	74.2	54.9	64.8
<b>Total participants</b>	<b>970.8</b>	<b>746.9</b>	<b>1 717.8</b>	<b>69.6</b>	<b>56.3</b>	<b>63.1</b>

(a) Children aged 5 to 14 years who participated in organised sport (excluding dancing) outside of school hours during the 12 months prior to interview in April 2009.

(b) A participation rate is the number of persons involved in an activity expressed as a percentage of the total population of that group.

Source: Children's Participation in Cultural and Leisure Activities, Australia, April 2009 (4901.0).

#### 14.18 CHILDREN PARTICIPATING IN MOST POPULAR ORGANISED SPORTS(a), By sex

	2006			2009		
	Males	Females	Persons	Males	Females	Persons
	%	%	%	%	%	%
Swimming	16.5	18.2	17.4	17.2	19.8	18.5
Soccer (outdoor)	19.6	6.4	13.2	19.9	6.2	13.2
Australian Rules football	13.8(b)	0.9	7.5(b)	16.0	0.9	8.6
Netball	*0.1	17.3	8.5	*0.3	17.0	8.4
Tennis	8.0	6.6	7.3	9.4	6.3	7.9
Basketball	7.4	5.7	6.6	8.5	6.3	7.4
Martial arts	6.1(b)	2.9	4.5(b)	7.5	3.7	5.7
Cricket (outdoor)	10.1	*0.4	5.4	9.7	*0.5	5.2
Gymnastics	1.6	5.5(b)	3.5(b)	1.7	7.6	4.6
Rugby league	7.9	*0.3	4.2	7.0	—	3.6
Athletics, track and field	2.6	3.2	2.9	3.0	3.5	3.3
Soccer (indoor)	3.3	1.1	2.2	4.3	1.3	2.8
Hockey	1.7	2.2	1.9	1.8	2.4	2.1
All other organised sports	17.5	17.0(b)	17.3(b)	15.8	12.1	14.0
<b>At least one organised sport(c)</b>	<b>68.8</b>	<b>56.5</b>	<b>62.8</b>	<b>69.6</b>	<b>56.3</b>	<b>63.1</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution

— nil or rounded to zero (including null cells)

(a) Children aged 5 to 14 years who participated in organised sport (to a maximum of three per child), excluding dancing, outside of school hours during the 12 months prior to interview in April.

(b) Difference between this participation rate and the 2009 participation rate is statistically significant.

(c) May not add to sum of components as some children participated in more than one activity.

Source: Children's Participation in Cultural and Leisure Activities, Australia, April 2009 (4901.0).

### 14.19 CHILDREN PARTICIPATING IN SELECTED OTHER ACTIVITIES(a), By sex

	2006		2009	
	Number	Participation rate	Number	Participation rate
	'000	%	'000	%
<b>MALES</b>				
Skateboarding, rollerblading or riding a scooter(b)	. .	. .	780.4	55.9
Bike riding	1 003.0	73.4(c)	922.5	69.5
Dancing(d)(e)	32.5	2.4	41.9	3.0
<b>FEMALES</b>				
Skateboarding, rollerblading or riding a scooter(b)	. .	. .	562.2	40.3
Bike riding	803.2	61.9(c)	721.1	54.4
Dancing(d)(e)	300.1	23.1(c)	348.5	26.3
<b>PERSONS</b>				
Skateboarding, rollerblading or riding a scooter(b)	. .	. .	1 342.6	49.3
Bike riding	1 806.2	67.8(c)	1 643.6	60.4
Dancing(d)(e)	332.6	12.5(c)	390.4	14.3

. . not applicable

(a) Children aged 5 to 14 years who were involved in selected activities outside of school hours during the last two school weeks prior to interview in April.

(b) Riding a scooter was included in this category for 2009 data.

(c) Difference between this participation and the 2009 participation rate is statistically significant.

(d) Although actually a cultural activity, dancing is included here because of the physical exertion it requires.

(e) Children aged 5 to 14 years who participated in organised dancing (lessons or performances) outside of school hours during the 12 months prior to interview in April.

Source: Children's Participation in Cultural and Leisure Activities, Australia, April 2009 (4901.0).

Participation in organised sport peaked at 74% for 12 to 14 year old boys and at 65% for girls aged 9 to 11 years. Participation rates were higher for boys across all age groups compared with girls, with the greatest difference occurring in the 12 to 14 years age group. The total participation rate was 70% for boys and 56% for girls (table 14.17).

Participation rates in organised sport varied between the states and territories, ranging from 58% in Tasmania to 71% in the Australian Capital Territory.

The most popular organised sports for children in 2009 were swimming with a participation rate of 19%, outdoor soccer at 13% and Australian Rules football at 9% (table 14.18). For boys, the most popular sports were outdoor soccer (20%), swimming (17%), and Australian Rules football (16%). In comparison, the sports most popular among girls were swimming (20%), netball (17%) and gymnastics (7.6%).

Male and female participation rates in at least one organised sport did not show any significant change between 2006 and 2009 increasing from 69% to 70% for boys and decreasing from 57% to 56% for girls.

Although boys had the higher participation rate in organised sport, girls had a much higher participation rate than boys in another form of organised physical activity – dancing. During the 12 months ended April 2009, there were 348,500 girls who participated in organised dancing outside school hours – a participation rate of 26%. The number of boys participating was 41,900 – a participation rate of 3.0% (table 14.19).

Besides organised sport and dancing, the survey also asked about participation in several non-organised physical recreation activities – bike riding and skateboarding, rollerblading or riding a scooter. For both activities, a significantly higher percentage of boys (70% and 56% respectively) participated than did girls (54% and 40%). However, participation by girls in bike riding was significantly lower in April 2009 than it had been in April 2006 – 54% compared with 62%.

### Attendance

Attending sporting events (such as club matches and international competitions) is a popular pastime for many Australians. An ABS household survey conducted during the period July 2005 to June 2006 indicated that 7.1 million people, or 44% of all people aged 15 years and over,

attended a sporting event (excluding junior and school sport) at least once in the 12 months prior to interview. Men (52%) were more likely to have attended a sporting event than women (37%). Attendance rates were highest for men in the 25 to 34 year age group (62%) and women in the 18 to 24 year age group (53%). For both sexes, attendance declined with age. Among men aged 65 years and over, the attendance rate was 29%, while for women in this age group it was 18%.

The sport with the highest attendance was Australian Rules football – 2.5 million people attended this sport on at least one occasion during the year (table 14.20). Horse racing (2.0 million), Rugby League (1.5 million) and motor sports (1.5 million) also attracted large numbers of spectators.

### Government support

Governments of all levels play an important role in the development of sport and physical recreation in Australia at both the elite and grassroots levels. The functions of some government (and non-government) national administrative bodies are described below.

The Sport and Recreation Ministers' Council (SRMC) provides a forum for cooperation and coordination between the Australian Government and state and territory governments on matters relating to the development of sport and recreation. The governments of New Zealand and Papua New Guinea are also represented on

SRMC. Its membership comprises government ministers with prime responsibility for sport and recreation.

The Australian Sports Commission (ASC) is the Australian Government agency responsible for the funding and development of sport at the national level. The ASC supports a wide range of programs designed to develop sporting excellence and increase participation in sport by all Australians. The Australian Institute of Sport (AIS) is a major program within the ASC and is responsible for developing elite sport on a national basis with a particular focus on success at the international level. More information about the ASC and AIS can be obtained from their websites.

The Commonwealth Department of Health and Ageing has a diverse set of responsibilities, which include supporting sport, particularly at the community level, and increasing Australians' participation in physical and recreational activities to promote physical and mental health.

Individual sports in Australia are managed and coordinated by National Sporting Organisations (NSOs), each managing participation in, and development of, a specific sport. Many NSOs receive funding from the ASC. More information about most NSOs can be obtained from the Australian Sports Directory on the ASC website.

Surveys of organisations (both private and public) providing sport and physical recreation services

#### 14.20 ATTENDANCE AT SELECTED SPORTING EVENTS(a)—2005–06

	NUMBER			ATTENDANCE RATE(b)		
	Males	Females	Persons	Males	Females	Persons
	'000	'000	'000	%	%	%
Australian Rules football	1 515.5	1 011.3	2 526.7	19.2	12.5	15.8
Horse racing	1 091.5	912.2	2 003.7	13.8	11.2	12.5
Rugby League	943.8	542.6	1 486.4	12.0	6.7	9.3
Motor sports	1 023.1	462.1	1 485.2	13.0	5.7	9.3
Cricket (outdoor)	547.5	183.2	730.7	6.9	2.3	4.6
Rugby Union	449.6	232.4	682.0	5.7	2.9	4.3
Soccer (outdoor)	348.6	212.2	560.7	4.4	2.6	3.5
Harness racing	253.7	190.5	444.2	3.2	2.3	2.8
Tennis	104.3	163.5	267.9	1.3	2.0	1.7
Dog racing	139.7	85.2	224.8	1.8	1.0	1.4
Basketball	132.6	104.6	237.2	1.7	1.3	1.5
Netball	58.0	130.8	188.8	0.7	1.6	1.2

(a) Attendance at least once in the 12 months prior to interview in the 2005-06 survey, by persons aged 15 years and over.

(b) The number of people who attended, expressed as a percentage of the number of people in that population group.

Source: Sports Attendance, Australia, 2005–06 (4174.0).

## 14.21 GOVERNMENT FUNDING FOR ORGANISATIONS PROVIDING SPORTS AND PHYSICAL RECREATION SERVICES, 2004–05

	Funding
<i>Type of sports and physical recreation service organisation</i>	\$m
Sports and physical recreation venues(a)	157.2
Sports and physical recreation administrative organisations	188.1
Sports and physical recreation clubs, teams and sports professionals	25.2
Sports and physical recreation support services	17.1
Government organisations	
Commonwealth, and state or territory	735.8
Local	440.1
Total	1 175.9
<b>Total</b>	<b>1 563.6</b>

(a) Includes health and fitness centres and gymnasias; and other sports and physical recreation venues, grounds and facilities.  
Source: Sports and Physical Recreation Services, Australia, 2004–05 (8686.0).

were conducted by the ABS in respect of 2004-05. It was found that the total funding provided by Commonwealth, state and local governments to these organisations was \$1,564m – 18% of their combined total income (\$8,821m). Of the funding provided by government, \$695m went to Commonwealth, state and territory government organisations providing sport and physical recreation services, \$481m funded local government organisations, \$46m went to organisations operating to make a profit, and \$342m funded organisations operating on a 'not-for-profit' basis. The amount of government funding by type of sport and physical recreation service can be seen in table 14.21.

### Industry

Surveys of businesses and other organisations providing sport and physical recreation services were conducted by the ABS in 2004–05. At the end of June 2005 there were 8,656 private sector organisations involved in the provision of sport and physical recreation services (table 14.22). The total income of these organisations for 2004–05 was \$7,342m, while total expenses were \$6,959m. At the end of June 2005, total employment was 100,468 assisted by 181,832 volunteers during the month of June. Of these volunteers, 18,126 (10%) assisted non-employing organisations.

While 42% of the private-sector organisations were 'not for profit', these were mainly concentrated in sports administration, where all 1,147 organisations operated on a not-for-profit basis; and in sports clubs, where 1,824 (69%) were not for profit. The highest proportions of organisations operating for profit occurred in the

categories of health and fitness centres and gymnasias (94%), and other sports services (93%).

At least 57% of the employees in sports administration, sports clubs, and horse and dog racing were male. Health and fitness centres and gymnasias had the highest level of female employment, both in absolute terms (11,362) and as a percentage of people employed (67%).

Organisations in the categories of sports administration, sports clubs and other sports services were the most likely to make use of volunteer labour. Together, they accounted for 97% of the 181,832 volunteers assisting organisations providing sports and physical recreation services. For these three categories, volunteers outnumbered employees by over three and a half to one overall. However, for the remaining three categories, employees outnumbered volunteers by nine to one overall.

The main sources of income for each category of sport and physical recreation service were:

- *horse and dog racing* – net industry and TAB distributions (44% of total income) and training fees (14%)
- *health and fitness centres and gymnasias* – membership and competition fees (79%) and casual playing fees (6.8%)
- *other sports and physical recreation venues* – casual playing fees (20%) and membership and competition fees (17%)
- *sports administration* – television and other broadcasting rights (17%) and sponsorship, fundraising and donations (16%)

## 14.22 SPORTS AND PHYSICAL RECREATION SERVICES, 2004–05

		Horse and dog racing	Health and fitness centres and gymnasia	Other sports and physical recreation venues	Sports and physical recreation administration	Sports and physical recreation teams and professionals	Other sports services(a)	Total
Businesses/organisations at 30 June								
For profit	no.	759	^ 777	872	..	825	1 774	5 007
Not for profit	no.	359	47	145	1 147	1 824	^ 127	3 649
Total	no.	1 119	^ 824	1 016	1 147	2 649	1 900	8 656
Total employment at 30 June								
Males	no.	9 826	5 509	9 309	6 084	12 890	6 333	49 951
Females	no.	6 719	11 362	10 005	4 535	9 326	8 571	50 518
Persons	no.	16 544	16 871	19 314	10 619	22 216	14 904	100 468
Total volunteers during the month of June								
	no.	3 457	^ 343	^ 2 031	^ 65 131	54 342	56 527	181 832
Total income(b)	\$m	1 556.3	679.4	1 109.8	1 531.0	1 884.1	582.0	7 342.6
Total expenses	\$m	1 515.5	649.4	1 020.3	1 461.7	1 815.1	496.6	6 958.7
Operating profit/surplus before tax(b)(c)								
	\$m	^ 41.3	^ 30.3	90.1	^ 70.9	70.6	^ 85.7	388.8

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

.. not applicable

(a) Includes sports services such as education and coaching.

(b) Includes capital funding.

(c) This item is derived as total income minus total expenses, plus closing inventories minus opening inventories.

Source: Sports and Physical Recreation Services, Australia, 2004–05 (8686.0).

■ *sports clubs* – sponsorship, fundraising and donations (22%) and membership and competition fees (19%)

■ *other sports services* – coaching, training and instructing (56%) and casual playing fees (16%).

### Employment and other involvement

The 2006 Census of Population and Housing provides information on the number and characteristics of people aged 15 years and over whose main job in the week prior to the Census was in a sport and physical recreation occupation. People who had unpaid involvement in sport and physical recreation activities and people who worked in sport and physical recreation as a 'second job' were not recorded as being in sport and physical recreation occupations, unless their main job (in terms of hours worked) was also a sport and physical recreation occupation.

The 2006 Census found that in August 2006, 75,155 persons (0.7% of all employed persons) had their main (paid) job in a sport and physical recreation occupation. This is a 22% increase from the 2001 Census when 61,818 persons

(0.7%) had their main job in a sport and physical recreation occupation, and compares with a 9.7% increase for all occupations.

Of those employed in a sport and physical recreation occupation in August 2006, fitness instructors (13,799 persons) and greenkeepers (12,137 persons) were prominent (table 14.23). There were more males (44,443 or 59%) than females (30,712 or 41%) employed in sport and physical recreation occupations. By comparison, of all employed persons, 54% were male.

The ABS conducted a household survey in April 2007 to measure people's involvement in organised sport and physical activities over the previous 12 months. In the year ended April 2007, 4.5 million people (27% of all people aged 15 years and over) were involved in sport and physical activity organised by a club, association or other organisation (table 14.24). This involvement included not only players and participants, but also people involved in non-playing roles that support, arrange and/or run organised sport and physical activity.

### 14.23 PERSONS EMPLOYED IN SELECTED SPORTS AND PHYSICAL RECREATION OCCUPATIONS(a)—2006

<i>Occupation</i>	<i>Males</i>	<i>Females</i>	<i>Persons</i>
Fitness instructor	5 075	8 724	13 799
Greenkeeper	11 816	321	12 137
Swimming coach or instructor	1 607	5 978	7 585
Stablehand	1 613	2 267	3 880
Other sports coach or instructor	2 529	932	3 461
Sports centre manager	2 071	1 336	3 407
Horse trainer	1 967	797	2 764
Lifeguard	1 687	907	2 594
Sports umpire	1 804	579	2 383
Tennis coach	1 677	468	2 145

(a) The Australian and New Zealand Standard Classification of Occupations was used for the collection of ABS occupation data.

Source: Employment in Sport and Recreation, Australia, August 2006 (4148.0).

### 14.24 PERSONS INVOLVED IN ORGANISED SPORT AND PHYSICAL ACTIVITY

	SOME PAID INVOLVEMENT		UNPAID INVOLVEMENT ONLY(a)		TOTAL INVOLVEMENTS		PARTICIPATION RATE(b)	
	2004	2007	2004	2007	2004	2007	2004	2007
	'000	'000	'000	'000	'000	'000	%	%
Playing	87.7	114.7	3 580.5	3 700.3	3 668.2	3 815.0	23.4	23.4
Non-playing involvement								
Coach, instructor, teacher	122.1	145.1	472.3	513.4	594.5	658.5	3.8	4.0
Referee or umpire	78.6	81.8	256.8	299.4	335.4	381.2	2.1	2.3
Committee member or administrator	21.6	41.0	552.8	641.6	574.4	682.6	3.7	4.2
Scorer or timekeeper	16.7	26.6	496.3	589.2	513.0	615.8	3.3	3.8
Medical support and other involvement	14.1	18.4	90.4	159.8	104.5	178.2	0.7	1.1
Other involvement	14.0	16.6	113.9	79.0	127.9	95.6	0.8	0.6
<i>Total persons with non-playing involvement(c)</i>	247.4	265.9	1 250.1	1 467.7	1 497.5	1 621.4	9.6	9.9
<b>Total persons involved(d)</b>	<b>297.9</b>	<b>348.7</b>	<b>3 971.9</b>	<b>4 306.9</b>	<b>4 269.8</b>	<b>4 455.4</b>	<b>27.2</b>	<b>27.3</b>

(a) Includes those who did not know whether they would be paid for their involvement.

(b) The total number of persons involved in organised sport and physical activity, expressed as a percentage of the population in the same group.

(c) Components do not add to total as some persons were involved in more than one non-playing role.

(d) Components do not add to total as some persons were involved in both playing and non-playing roles.

Source: Involvement in Organised Sport and Physical Activity, Australia, April 2007 (6285.0).

#### 14.25 SPORT AND PHYSICAL RECREATION AND OTHER VOLUNTEERS, By age and sex—2006

	<i>Sport &amp; physical recreation organisation(s) only</i>	<i>Sport &amp; physical recreation and other organisation(s)</i>	<i>Total sport &amp; physical recreation organisation(s)</i>	<i>Other organisations only</i>	<i>Total volunteers</i>	<i>Not a volunteer</i>	<i>Total Persons aged 18 years &amp; over</i>
<b>VOLUNTEERS ('000)</b>							
Male	672.9	366.9	1 039.9	1 365.3	2 405.2	5 148.1	7 553.3
Female	294.8	378.1	672.9	2 148.4	2 821.3	4 932.5	7 753.8
<b>VOLUNTEERS ('000)</b>							
Male	8.9	4.9	13.8	18.1	31.8	68.2	100.0
Female	3.8	4.9	8.7	27.7	36.4	63.6	100.0
<b>VOLUNTEERS ('000)</b>							
Age group (years)							
18–24	147.5	62.8	210.3	364.0	574.3	1 365.8	1 940.1
25–34	167.9	112.7	280.6	578.3	858.9	1 950.3	2 809.2
35–44	241.0	269.4	510.4	764.7	1 275.1	1 713.2	2 988.3
45–54	251.9	172.4	424.2	677.4	1 101.6	1 698.6	2 800.2
55–64	90.5	79.1	169.6	556.8	726.4	1 512.9	2 239.3
65 & over	68.9	48.7	117.6	572.8	690.4	1 839.5	2 529.9
<b>Total</b>	<b>967.7</b>	<b>745.1</b>	<b>1 712.8</b>	<b>3 513.7</b>	<b>5 226.5</b>	<b>10 080.6</b>	<b>15 307.1</b>
<b>VOLUNTEERS ('000)</b>							
18–24	7.6	3.2	10.8	18.8	29.6	70.4	100.0
25–34	6.0	4.0	10.0	20.6	30.6	69.4	100.0
35–44	8.1	9.0	17.1	25.6	42.7	57.3	100.0
45–54	9.0	6.2	15.1	24.2	39.3	60.7	100.0
55–64	4.0	3.5	7.6	24.9	32.4	67.6	100.0
65 & over	2.7	1.9	4.6	22.6	27.3	72.7	100.0
<b>Total</b>	<b>6.3</b>	<b>4.9</b>	<b>11.2</b>	<b>23.0</b>	<b>34.1</b>	<b>65.9</b>	<b>100.0</b>

Source: ABS data available on request, General Social Survey.



There were 1.6 million people (9.9% of all people aged 15 years and over) who were involved as coaches, referees, scorers, administrators or in other non-playing roles.

Of the 4.5 million people involved in organised sport and physical activity, 22% were both a player and involved in at least one non-playing role. Of the 1.6 million people with non-playing involvement, 40% participated in more than one non-playing role. In all, these 1.6 million people had 2.6 million involvements in non-playing roles in the 12 months prior to interview.

Of the 3.8 million players, 3.0% received some payment (in dollars and/or goods and services) for their involvement and, of the 1.6 million non-playing involvements, 16% attracted some payment (table 14.24). These data, and the figures in table 14.22, indicate how heavily reliant sport organisations are on the support of unpaid helpers.

A household survey, conducted by the ABS during March to July 2006, collected information on the types of organisations, clubs and associations to which people provided unpaid help in the form of time, services or skills (volunteers). The survey found that just over a third (34%) of Australians aged 18 years and over (5.2 million people) undertook some form of voluntary work in the 12 months prior to interview in 2006 (table 14.25). Sport and physical recreation organisations had the largest number of volunteers at 1.7 million, giving a volunteer rate of 11%. Although the overall volunteer rate for females (36%) was higher than for males (32%), the reverse was true for sport and physical recreation organisations with the male volunteer rate being 14% and the female 8.7%. The peak age group for volunteering for sport and physical recreation organisations was 35 to 44 year olds with a volunteer rate of 17%.

## Participation of migrants in culture and leisure activities

Australia is a culturally diverse nation with migrants arriving from around two hundred countries during the past two centuries (Jupp 2002). These migrants have played an important role in shaping our nation (Department of Immigration and Citizenship 2009). Social and economic issues such as the ageing population and skills shortages have highlighted the role migration will play in the economic and demographic future of Australia (Department of Immigration, Multicultural and Indigenous Affairs 2002). While migrants contribute to and enrich Australian society through their different skills, abilities and experiences, they potentially face difficulties such as language barriers, cultural differences and discrimination, which could affect their ability to participate in some social activities.

This article examines several areas of participation in culture and leisure activities in the context of whether migrants came from main English-speaking countries or other countries. These migrants may or may not be proficient in spoken English.

### Migrants in Australia

According to the 2006 Census of Population and Housing, 22% (4.4 million) of people in Australia were born overseas. A further 26% of people who were born in Australia had at least one parent who was born overseas.

The 2006 General Social Survey collected information on a range of demographic and social dimensions. According to the survey, 37% of the migrant population were from main English-speaking countries (the United Kingdom, New Zealand, the Republic of Ireland, Canada, the United States of America and South Africa). The remainder (63%) were born in other countries. Of those born in other countries, around 2 million (82%) were proficient in spoken English.

Over the last ten years, there has been an increased emphasis on skilled migration programs in Australia (Parliamentary Library 2006). During this time, the pattern of migration has also changed. For example, while migrants from the United Kingdom and New Zealand remained the two largest overseas-born groups, the proportion of migrants coming to Australia

who were born in China, India and South Africa increased considerably between 1996 and 2006 (see *Australian Social Trends* (4102.0)).

### Participation in social activities

The Universal Declaration of Human Rights recognises that some level of social and cultural participation is a fundamental human right and need (The General Assembly of the United Nations 1948). Social participation is believed to have positive impacts on the health of individuals and on the strength of communities.

### Organised social groups

Involvement in organised social groups such as craft or hobby groups, or sport and recreation clubs, is a common form of social participation. In 2006, migrants from main English-speaking countries (34%) and people born in Australia (38%) were most likely to be involved in a sport or recreation group whereas people from other countries were most commonly involved in a religious or spiritual group (30%).

### Sporting and physical recreation activities by adults

In Australia, as in many other countries, attendance at sporting events or participation in sporting activities has been a common avenue for individuals to engage with the wider community (Taylor 2003).

The results from the 2006 General Social Survey showed that participation in sporting activities (either formal or informal) through playing, coaching, refereeing or administrative roles, was a popular means of social interaction. Almost two-thirds (65%) of people from main English-speaking countries and just over half (53%) of people from other countries reported some form of participation in sport in the previous 12 months. The proportion of people born in Australia who participated in sporting activities (64%) was similar to that of people from main English-speaking countries.

The results from the Multi-Purpose Household Survey 2005-06 showed that persons born in other countries had a lower rate of participation

## 14.26 PARTICIPANTS, SPORT AND PHYSICAL RECREATION, By country of birth—2005–06

	Born in Australia	Born in main English-speaking Countries	Born in other countries
	%	%	%
Walking for exercise	24.9	31.4	20.0
Aerobics/fitness	12.9	14.3	10.1
Swimming	9.0	11.9	7.5
Tennis	5.3	4.6	2.8
Soccer (outdoor)	2.5	2.0	3.3
Golf	5.8	7.1	3.3
Gymnastics	0.7	*0.4	*0.5
Netball	3.4	1.8	*0.4
Basketball	2.2	*1.2	2.3
Australian Rules football	2.2	*0.6	**0.1
Rugby League	0.7	**0.3	**0.2
Rugby Union	0.4	*1.0	**0.3

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

Source: ABS data available on request, Multi-Purpose Household Survey, 2005–06.

(52%) in sport and physical recreation than persons born in main English-speaking countries (72%) or persons born in Australia (68%).

Walking for exercise was the most popular activity for all birthplace groups with a quarter of the total population (25%) participating in this activity (table 14.26). Those born in main English-speaking countries had the highest rate of participation in walking for exercise (31%) compared with people born in Australia (25%) and those born in other countries (20%).

### Sporting and leisure activities by children

The survey of Children's Participation in Cultural and Leisure Activities conducted in April 2009 showed there is a noticeable difference in the participation rate of children born in other countries compared with those born in Australia or in a main English-speaking country. Around two-thirds (64% and 62% respectively) of children born in Australia and main English-speaking countries participated in organised sport outside school hours, whereas the participation rate for children born in other countries was 40% (table 14.27).

The most popular organised sports for children aged 5–14 years born in other countries were swimming, with 17,600 participants (13%) and soccer (outdoor) with 16,600 participants (12%). The level of participation in swimming and soccer

(outdoor) were 19% and 13% respectively for children born in Australia, and for those born in main English-speaking countries the levels were 20% and 13%.

The rate of participation in Australian Rules football was lower for children born in main English-speaking countries (7.1%). In comparison, 9.2% of Australian born children participated in Australian Rules football. Children born in main English-speaking countries had a higher rate of participation in netball (7.6%) compared with children born in other countries (1.6%).

The leisure activities with the most noticeable differences in participation rates were skateboarding, rollerblading or riding a scooter; art and craft; and bike riding. Proportionally, twice as many Australian-born children (51%) participated in skateboarding, rollerblading or riding a scooter than children born in other countries (25%). There were similar participation rates for watching TV, videos or DVDs across all country of birth groups.

### Cultural activities by children

The survey of children's activities showed that children born overseas were more likely to have visited a public library (60%) than their Australian born counterparts (53%) (table 14.28). Children born in main English-speaking countries had the highest attendance rate at museums and art galleries at 47%, compared with those born in

**14.27 CHILDREN'S PARTICIPATION IN SELECTED ORGANISED SPORTS AND LEISURE ACTIVITIES, By country of birth—2009**

	<i>Born in main English-speaking countries</i>		<i>Born in other countries</i>
	<i>Born in Australia</i>	<i>Born in English-speaking countries</i>	<i>Born in other countries</i>
	%	%	%
Organised sports (excluding dancing)(a)			
Swimming	18.7	20.0	12.5
Soccer (outdoor)	13.3	13.4	11.8
Netball	8.8	7.6	*1.6
Australian Rules football	9.2	*7.1	np
Tennis	8.0	8.1	5.3
Other organised sports	39.8	42.8	22.8
<i>At least one organised sport(b)</i>	<i>64.4</i>	<i>62.4</i>	<i>40.1</i>
Selected other activities(c)			
Skateboarding, rollerblading or riding a scooter	51.0	44.4	24.7
Bike riding	61.3	61.9	42.5
Watching TV, videos or DVDs	97.3	97.0	98.5
Other screen-based activities	83.2	82.6	83.1
Art and craft	48.7	51.9	39.4
Reading for pleasure	71.8	77.7	75.2
Homework or other study	82.1	85.4	84.2

\* estimate has a relative standard error of 25% to 50% and should be used with caution

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Outside of school hours during the 12 months prior to interview in April 2009.

(b) May not add to sum of components as some children participated in more than one activity.

(c) Outside of school hours during the two school weeks prior to interview in April 2009.

Source: ABS data available on request, Survey of Children's Participation in Cultural and Leisure Activities, 2009.

Australia (42%) and in other countries (33%). For performing arts events, children born in main English-speaking countries had the highest participation rate at 37%, followed by children born in Australia (34%) and children born in other countries (28%).

Participation rates for playing a musical instrument and singing were very similar across all country of birth groups. For dancing and drama, children born in other countries tended to have lower participation rates than children born in main English-speaking countries.

### Attendance at cultural venues

Migrants born in main English-speaking countries had higher attendance rates than migrants born in other countries at all heritage and arts venues (table 14.29). They also had higher attendance rates than their Australian born counterparts at all heritage venues and most performing arts, excluding popular music concerts and cinemas.

The cinema was the most popular venue for both migrant groups, as well as for people born in Australia. People born in Australia and main English-speaking countries had higher rates of

attendance (86% and 90% respectively) than did people from other countries (76%) in at least one venue or event.

### Attendance at sporting events

The Multi-Purpose Household Survey 2005-06 showed close to half (44%) of the population aged 15 years and over attended a sporting event or venue in the 12 months prior to interview. Proportionally more Australian born people (50%) attended sporting events compared with those born in main English-speaking countries (42%) and other countries (21%).

These differences are also highlighted in the attendance rates for different sporting events (table 14.30). Overall, the most popular sport attended by each birthplace group was Australian Rules football with an attendance rate of 19% for persons born in Australia, 12% for persons born in main English-speaking countries and 6% for persons born in other countries. Four per cent of those born in other countries attended horse racing and 3% attended a motor sports event. In comparison, those born in Australia had higher attendance rates for these events, with

**14.28 CHILDREN'S PARTICIPATION AND ATTENDANCE IN ARTS AND CULTURAL HERITAGE, By country of birth—2009**

	<i>Born in main English speaking Australia</i>	<i>Born in main English speaking countries</i>	<i>Born in other countries</i>
PARTICIPATION RATE (%)			
Attendance at cultural venues and events			
Visited public library	53.0	59.7	60.7
Visited museum or art gallery	41.5	47.4	33.4
Attended performing arts event	33.7	37.3	27.5
<b>At least one selected venue or event</b>	<b>70.7</b>	<b>75.3</b>	<b>70.3</b>
Participation in organised cultural activities			
Playing a musical instrument	19.6	20.5	20.0
Singing	6.1	6.6	5.3
Dancing	14.5	19.0	8.3
Drama	4.6	7.5	2.6
<b>At least one selected organised cultural activity</b>	<b>33.6</b>	<b>38.9</b>	<b>29.7</b>

Source: Children's Participation in Cultural and Leisure Activities, Australia, April 2009 (4901.0).

**14.29 ATTENDANCE AT CULTURAL VENUES AND EVENTS, By country of birth—2005–06**

	<i>Born in Australia</i>	<i>Born in main English-speaking countries</i>	<i>Born in other countries</i>
	%	%	%
Heritage-related Institutions			
Botanic gardens	32.8	41.1	32.5
Zoological parks and aquariums	36.2	41.1	29.6
Art galleries	23.4	29.4	15.6
Museums	22.7	28.9	18.2
Libraries	33.4	42.1	31.8
Performing Arts and Cinemas			
Popular music concerts	28.0	27.3	12.2
Classical music concerts	8.8	13.3	9.4
Dance performances	10.7	10.8	7.5
Musicals and operas	17.4	19.6	10.0
Theatre performances	17.9	22.3	9.8
Other performing arts	17.1	18.9	13.1
Cinemas	68.3	66.7	51.0
<b>At least one venue or event</b>	<b>86.3</b>	<b>89.6</b>	<b>75.6</b>

Source: Attendance at Selected Cultural Venues and Events, Australia, 2005–06 (4114.0).

attendance rates of 15% and 11% respectively. Soccer (outdoor) was the only sport that was attended by a greater proportion of people born

in other countries (4.0%) compared with those born in Australia (3.3%).

### 14.30 SPORTS ATTENDANCE, By country of birth—2005–06

	Born in Australia	Born in main English-speaking countries	Born in other countries
	%	%	%
Australian Rules football	18.8	11.8	5.8
Basketball	1.5	*1.5	*1.2
Cricket (outdoor)	5.2	3.7	2.4
Harness racing	3.2	2.6	1.0
Horse racing	14.7	11.8	3.7
Motor sports	11.2	7.4	2.6
Rugby League	10.9	7.8	3.4
Rugby Union	4.5	7.6	1.3
Soccer (outdoor)	3.3	4.3	4.0
Tennis	1.8	1.8	*0.9

\* estimate has a relative standard error of 25% to 50% and should be used with caution

Source: ABS data available on request, Multi-Purpose Household Survey, 2005–06.

#### Data sources and definitions

Data for this article are primarily from the 2005–06 Multi-Purpose Household Survey and the 2006 General Social Survey. The Multi-Purpose Household Survey included modules on participation in sport and attendance at sporting and cultural events. The General Social Survey collected data on a range of social dimensions. This allows analysis of interrelationships in social circumstances and outcomes including the exploration of multiple advantage and disadvantage.

A migrant is a person who was born overseas and obtained permanent Australian resident status prior to, or after, their arrival.

Main English-speaking countries are the main countries from which Australia receives, or has received, significant numbers of overseas settlers who are likely to speak English. These countries comprise the United Kingdom, New Zealand, the

Republic of Ireland, Canada, the United States of America and South Africa.

People born in other countries refers to people who were not born in Australia or in a main English-speaking country. These people may or may not be proficient in spoken English.

For more information see:

*General Social Survey: Summary of Results, 2006* (4159.0)

*Participation in Sports and Physical Recreation, Australia, 2005-06* (4177.0)

*Children's Participation in Cultural and Leisure Activities, Australia, April 2009* (4901.0).

*Attendance at Selected Cultural Venues and Events, Australia, 2005-06* (4114.0)

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## INDUSTRY STRUCTURE AND PERFORMANCE

This chapter presents a consolidated view of industrial production in Australia. The current structure and performance of the main industrial components of the Australian economy, and their relative contribution to overall economic activity, are described in terms of the value of production and employment by industries. Statistics are also provided on the growth of industries over the past ten years and the changing contribution of individual industries to total economic activity during the period. More detailed information on the structure and performance of individual industries is provided in later chapters.

This chapter begins by outlining the development of industry since European settlement in *The evolution of Australian industry*. The section *Value of goods and services produced by Australian industry* examines industry gross value added and the contribution of individual industries to Australia's gross domestic product. *Employment in Australian industry* looks at industry shares of total employment, average weekly paid hours, and compensation of employees. *Australian industry business entries and exits* looks at the flow of Australian businesses into and out of the Australian economy, including the survival rates of entries. The chapter concludes with a section on *Industry productivity* which provides data on multifactor productivity for the market sector as a whole and gross value added per hour worked for market sector industries.

This chapter contains the article *The Australian and New Zealand Standard Industrial Classification 2006*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Evolution of Australian industry

Australia's economic development has been one of contrast and change. In the early years of European settlement, between 1788 and 1820, there was little scope for industrial or commercial enterprises. The government, as both main producer and main consumer, established workshops to produce the basic necessities of life – flour, salt, bread, candles, leather and leather articles, blacksmith's products, tools and domestic items.

Between 1820 and 1850 the pastoral industry led Australia's economic development, and by 1850 it was supplying well over half of the British market for imported wool. The growth in the wool industry brought great advances in the rest of the economy, with local manufacturing industries being established in response to new market opportunities. Gold surpassed wool as Australia's major export earner throughout the 1850s and 1860s, resulting in a rapid expansion of banking and commerce. Increased public works activity during the 1870s played an important role in encouraging expansion in manufacturing. By 1901 this expansion had resulted in an economy where agriculture, manufacturing, mining, construction and the service industries all provided significant contributions to Australia's wealth.

From 1901 to 1930 manufacturing expanded further, with impetus from Federation and the elimination of customs barriers between states, and from World War I. With the onset of World War II, the Australian manufacturing sector was sufficiently developed and diversified to respond to the demand for war materials and equipment. Key industries expanded and new ones developed rapidly to produce munitions, ships, aircraft, new kinds of equipment and machinery, chemicals, textiles and so on. After the war all sectors of the economy experienced growth. The manufacturing sector's contribution to the economy peaked at just under 30% of gross domestic product (GDP) in the late-1950s and early-1960s.

The onset of the oil price rises in the early-1970s led the world into recession. Inflation, coupled with slower growth in Australia's GDP, affected all sectors of the economy. The modest employment growth in the 1970s was dominated by the service industries.

The 1980s and 1990s saw a decline in the relative contribution to GDP from goods-producing industries and a rise in the contribution from service industries. The falling contribution from goods-producing industries was largely the result of a decline in manufacturing's share of GDP. The mining, manufacturing, and electricity, gas and water supply industries experienced declining employment, along with outsourcing of some activities, particularly support services.

The early-2000s saw a continuing decline in the relative contribution to GDP from goods-producing industries, and a continuing rise in the contribution from service industries. While manufacturing remains a significant industry, its share of GDP continues to be the primary driver for the falling contribution from goods-producing industries. While the finance and insurance industry provided the largest increase in service industries, the property and business services now had the highest relative contribution to GDP. The article *100 years of change in Australian industry* in *Year Book Australia 2005* provides more information about the evolution of Australian industry in the 20th century.

Following the fall in GDP in volume terms in 1990–91 and a flat result in 1991–92 there was 16 years of consecutive growth up to and including 2007–08. Growth was recorded in most industries during 2007–08; Communication services (7%), Transport and storage (6%) and Property and business services (6%). Manufacturing recorded a moderate growth overall (3%). The Water supply, sewerage and drainage services subdivision of the Electricity, gas and water supply industry, however, recorded its third consecutive fall, down by 5%.

## Value of goods and services produced by Australian industry

One measure of the importance of an industry is its contribution to the Australian economy. The size of the Australian economy is typically described in terms of GDP, and the structure and performance of the economy in terms of industry gross value added (GVA).

GDP is an estimate of the total market value of goods and services produced in Australia in a given period after deducting the cost of goods

### 15.1 INDUSTRY GROSS VALUE ADDED AND GROSS DOMESTIC PRODUCT, Volume measures(a)(b)

	2003-04	2004-05	2005-06	2006-07	2007-08
ANZSIC Division	\$m	\$m	\$m	\$m	\$m
Agriculture, forestry and fishing	26 279	27 361	28 145	23 152	25 085
Mining	71 521	74 793	75 613	81 415	82 650
Manufacturing	103 093	101 846	101 320	103 292	106 776
Electricity, gas and water supply	21 655	21 827	22 117	21 854	21 904
Construction	60 603	63 490	68 746	72 408	77 101
Wholesale trade	43 861	45 370	46 693	47 626	49 013
Retail trade	51 506	53 743	54 281	56 342	58 932
Accommodation, cafes and restaurants	18 568	19 480	20 050	20 461	20 529
Transport and storage	42 221	44 518	45 725	48 409	51 294
Communication services	20 336	21 018	22 555	24 616	26 377
Finance and insurance	64 377	66 960	70 426	76 576	80 270
Property and business services(c)	117 175	118 386	121 911	124 830	131 907
Government administration and defence	36 607	37 894	38 683	40 667	40 708
Education	41 380	41 880	42 400	43 036	43 681
Health and community services	55 193	57 341	60 218	61 650	64 758
Cultural and recreational services	13 475	14 251	14 651	15 571	16 120
Personal and other services	17 441	17 665	18 371	19 183	19 848
Ownership of dwellings	72 916	75 937	78 813	81 410	83 423
Gross value added at basic prices	878 403	903 586	931 040	962 500	1 000 377
Gross Domestic Product	956 017	982 786	1 012 269	1 045 674	1 084 156

(a) Reference year is 2006-07.

(b) Volume measures for years other than 2006-07 and 2007-08 are not additive.

(c) Excludes ownership of dwellings.

Source: Australian System of National Accounts, 2007-08 (5204.0).

and services used up in the process of production (intermediate consumption), but before deducting consumption of fixed capital. This is also described as the unduplicated value of economic production. This measure avoids double counting the goods and services produced at successive stages of production. Accordingly, it is a measure of the value added in production.

Industry GVA is the term used to describe the unduplicated value of goods and services produced by individual industries. This measure removes the distortion caused by variations in the incidence of commodity taxes and subsidies across the output of individual industries. Movements in the volume measures of GDP and industry GVA (from which the direct effects of price changes have been removed) are key indicators of economic growth. More information is provided in the *National accounts* chapter of this edition of Year Book Australia.

Table 15.1 provides details of industry GVA and GDP for 2007-08. Data are presented at a broad industry level, generally equating to the Division level of the *Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993* (1292.0). In the ANZSIC, individual

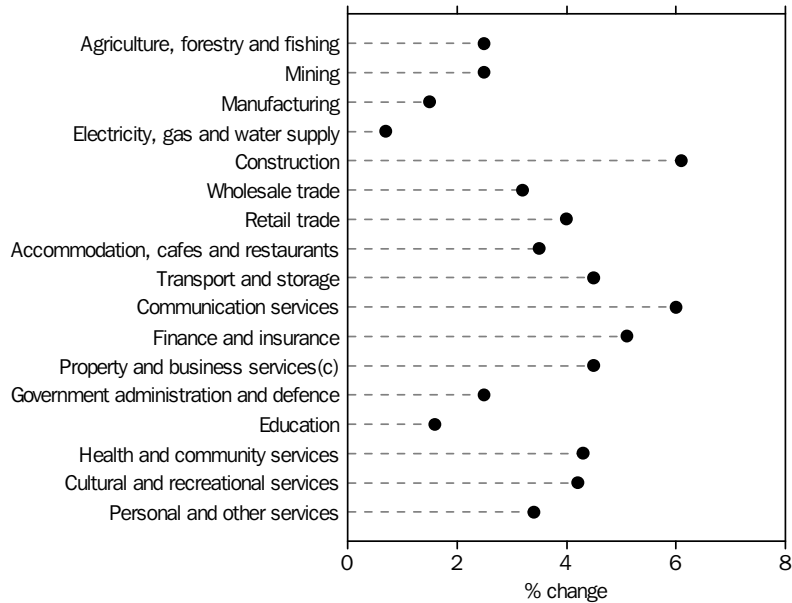
businesses are assigned an appropriate industry category on the basis of their predominant activities. The table provides estimates of the unduplicated production of goods and services (industry GVA) from 2003-04 to 2007-08.

In 2007-08, the value of Australian production (GDP) was \$1,084 billion (b) (in volume terms), an increase of 4% from 2006-07. In 2007-08, the ratio of GDP to the estimated resident population (GDP per person) was \$51,253.

Graph 15.2 shows the average annual rate of growth in GVA (in volume terms) for individual industries between 1997-98 and 2007-08. The Construction industry had the highest average annual rate of growth (just over 6%), followed by the Communication services (6%) and Finance and Insurance (5%).

While average annual growth rates provide an indicator of the broad underlying behaviour of the annual series over several years, these averages smooth the annual movements in the series and mask the highest and lowest movements. In terms of year-on-year changes, the fastest growing industry in this period, the Construction industry, showed mainly fluctuating increases in GVA throughout the decade, but

**15.2 AVERAGE ANNUAL RATE OF GROWTH IN THE PRODUCTION OF GOODS AND SERVICES(a)(b)—1997–98 to 2007–08**



(a) Industry gross value added at basic prices. (b) Chain volume measures. Reference year is 2005–06. (c) Excludes ownership of dwellings.

Source: Australian System of National Accounts (5204.0).

with a 14% decline between 1999–2000 and 2000–2001. In 2005–06, GVA of the Construction industry rose by 8%. The following year, in 2006–07, GVA of the Communication services industry rose by 9%.

The year-on-year changes for the Agriculture, forestry and fishing industry also varied significantly over time. While the value of production (GVA) of this industry grew by 3% on average each year between 1997–98 and 2007–08, it fell by 24% in 2002–03, due largely to the effects of drought on agricultural production. This was followed by strong growth in 2003–04, immediately following the 2002–03 drought.

Graph 15.3 shows industry GVA shares of GDP for 1997–08 and 2007–08. Property and business services contributed the largest share to GDP (12%) in 2007–08, followed by Manufacturing (10%) and Mining (8%).

Between 1997–98 and 2007–08, the largest increase in industry GVA share of GDP was for Construction (up 1.4%), followed by Property and business services (1.2%).

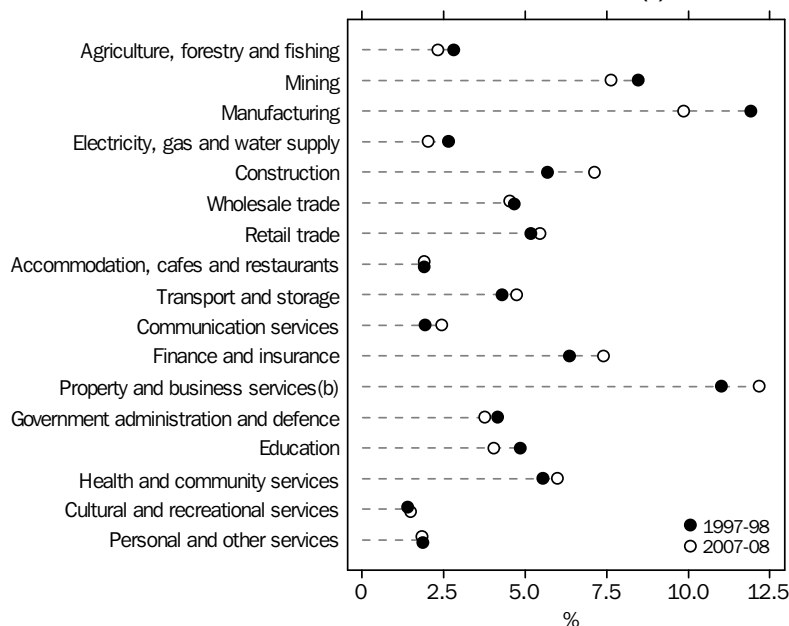
In the ten-year period, the largest fall in industry share of GDP was for Manufacturing (down 2.1%), followed by Mining (down 0.8%).

## Employment in Australian industry

Another measure of the significance of an industry is its contribution to total employment. Employment (and unemployment) data are used as social indicators by government, research and welfare organisations. Employment is also an indicator of economic activity, although turning points in the employment series tend to lag turning points in the business cycle.

Graph 15.4 shows industry shares of total employment in 1998–99 and 2008–09, by industry using ANZSIC 2006. These data were derived from the Australian Bureau of Statistics (ABS) monthly Labour Force Survey and relate to the civilian population aged 15 years and over. These data reflect averages across the four quarters of each year to remove seasonal effects. People are considered to be employed if they were in paid

### 15.3 CONTRIBUTION TO GROSS DOMESTIC PRODUCT(a)



(a) Industry gross value added as a proportion of gross domestic product.  
 (b) Excludes ownership of dwellings.

Source: Australian System of National Accounts (5204.0).

work for one hour or more in the reference week, or worked for one hour or more without pay in a family business or farm. Employment is further described in the *Labour* chapter of this edition of Year Book Australia.

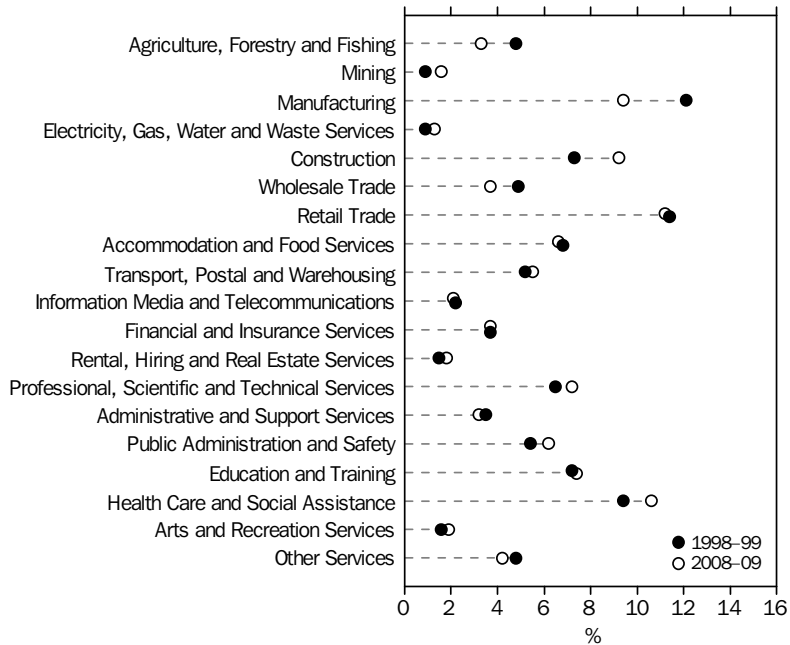
In 2008–09, 11 million (m) people were employed across all industries. From an industry perspective, the Retail trade industry employed the greatest number of people (1.2 million employed persons or 11% of total employment). Health care and social assistance employed 1.1 million people (just under 11% of total employment) followed by Manufacturing and Construction (both 9%), Education and Professional, scientific and technical services (both 7%).

These industries were also the main employing industries in 1998–99, although Retail trade has displaced Manufacturing as the largest employer. Between 1998–99 and 2008–09, the Construction industry share of total employment increased by 2%. Conversely, Manufacturing's share of total employment declined by 3% over the period.

The industry composition of average weekly paid hours for wage and salary earners provides an insight into the labour market. Data on this topic are obtained from the biennial Survey of Employee Earnings and Hours, conducted by the ABS. This survey covers all employing organisations in Australia (public and private sectors) except enterprises primarily engaged in the Agriculture, forestry and fishing industry, private households employing staff, and foreign embassies and consulates.

Graph 15.5 shows average weekly total paid hours for full-time adult non-managerial employees by industry in August 2008 compared with the average for all industries in the period (39.7 hours). Total paid hours are equal to ordinary time paid hours plus overtime paid hours. The highest average weekly paid hours for full-time adult non-managerial employees was in the Mining industry (43.9 hours), followed by Transport, postal and warehousing, and Construction (both 42.3 hours). The lowest average weekly paid hours were in Education (36.8 hours) and Public administration and safety (38.1 hours).

### 15.4 CONTRIBUTION TO TOTAL EMPLOYMENT(a)



(a) Annual average of quarterly data.

Source: *Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.003)*.

Paid overtime accounted for 4.0% of average weekly total paid hours for full-time adult non-managerial employees. Employees worked the most paid overtime in Construction (10.2% of total paid hours for that industry). Paid overtime in the Transport, postal and warehousing, Manufacturing, Electricity, gas, water and waste services, and Administrative and support services industries accounted for 9.9%, 7.7%, 7.2% and 3.5% of total paid hours respectively.

Compensation of employees is both an economic and social indicator. This item includes wages and salaries (paid in cash and in kind) and employer social contributions (e.g. employers' contributions to superannuation and worker's compensation premiums). Wages and salaries in kind can include meals, housing, uniforms, and vehicles.

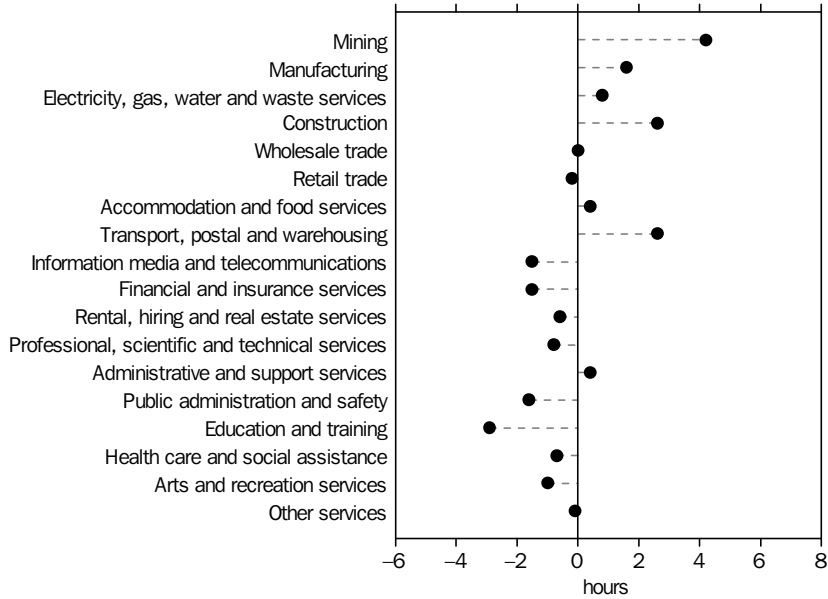
Graph 15.6 shows industry shares of total compensation of employees in 2007–08, by industry using ANZSIC 1993. In this period, total compensation of employees was \$539b. Total wages and salaries was \$479b (89% of total compensation of employees).

The Property and business services industry held the largest share of total compensation of employees (16%), followed by Manufacturing (12%), Health and community services (10%), and Finance and insurance and Education industries (8%). Three of these industries (Manufacturing, Health and community services and Education) were in the top six industries that had the highest share of total employment in 2007–08.

### Australian industry business entries and exits

This section provides counts and details of the flow of Australian businesses into and out of the Australian economy, including the survival rates of entries. Data were sourced from the ABS Business Register (ABR) and only include businesses which actively traded in goods and services during the reference period, rather than all entities registered on the ABR. Businesses classified to ANZSIC Division M, Government administration and defence are excluded from the statistics. In addition, entities classified to the

**15.5 AVERAGE WEEKLY TOTAL PAID HOURS FOR FULL-TIME ADULT NON-MANAGERIAL EMPLOYEES(a), Difference from all industries average(b)—Aug 2008**



(a) Excludes Agriculture, forestry and fishing. (b) For all industries the average weekly total paid hours is 39.7 hours.

Source: *Employee Earnings and Hours, Australia* (6306.0).

general government institutional sector are excluded for most industries. This exclusion particularly affects data for the Education, and Health and community services industries, where details relate only to private sector businesses. The term 'total selected industries' is used to refer to the aggregate of the industries included in this section.

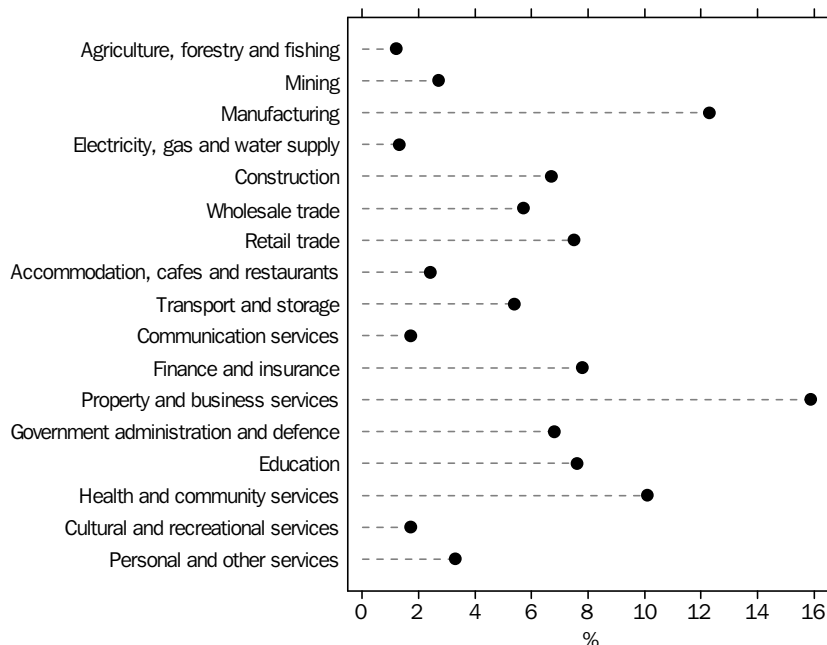
Table 15.7 shows the number of actively trading businesses in Australia at the beginning and end of 2006–07. The number of businesses operating in the total selected industries at June 2007 was 2,011,770. This compares with 1,963,907 businesses operating at the beginning of 2006–07 (a growth of 2% during the period). The Property and business services industry had the greatest number of businesses at June 2007 (507,508 or 25% of the total), followed by Construction (16%), Retail trade and Agriculture, forestry and fishing (both 11%). There was a marked decline (4%) in businesses within the Electricity, gas and water supply industry during the period under review.

Graph 15.8 shows that in 2006–07, there were three industries (Agriculture, Forestry and Fishing, Manufacturing and Electricity, Gas and Water Supply) where business exit rates exceeded business entry rates. This was the first year, since the business counts records commenced in 2003, that the Agricultural Industry recorded more exits than entries. The remaining thirteen industries reported more entrants. Of particular note were the Education, Finance and insurance and Construction industries. Between June 2003 and June 2007, the Education industry grew from 15,172 businesses to 16,265 businesses, an increase of 1,093 (7%). In the same period, the Finance and insurance industry grew by 6,588 businesses (5%).

Graph 15.9 shows survival rates at June 2006 and June 2007 for business entries during 2003–04. Survival rates at June 2006 and June 2007 were highest for businesses in Health and community services and Agriculture, forestry and fishing (71% and 65% respectively). Their survival rates at June 2006 and June 2007 are notably higher than the total selected industries average (65% and 58% respectively). Survival rates at June 2006 and June



### 15.6 CONTRIBUTION TO TOTAL COMPENSATION OF EMPLOYEES(a)—2007-08



(a) Comprises wages and salaries plus employers' social contributions.

Source: Australian System of National Accounts (5204.0).

### 15.7 BUSINESSES BY INDUSTRY DIVISION—2006-07

	Operating			Operating	Change	Percentage change
	at start of financial year	Entries(a)	Exists(b)	at end of financial year		
	no.	no.	no.	no.	no.	%
Agriculture, forestry and fishing	214 879	24 532	24 616	214 795	-84	—
Mining	6 997	1 251	1 043	7 205	208	3.0
Manufacturing	106 778	13 918	14 131	106 565	-213	-0.2
Electricity, gas and water supply	2 057	273	362	1 968	-89	-4.3
Construction	308 405	62 035	48 036	322 404	13 999	4.5
Wholesale trade	84 633	13 115	12 350	85 398	765	0.9
Retail trade	217 684	35 876	34 252	219 308	1 624	0.8
Accommodation, cafes and restaurants	55 666	10 712	9 700	56 678	1 012	1.8
Transport and storage	115 642	19 292	17 611	117 323	1 681	1.5
Communication services	23 191	5 419	4 612	23 998	807	3.5
Finance and insurance	129 646	27 188	20 247	136 587	6 941	5.4
Property and business services	492 453	86 097	71 042	507 508	15 055	3.1
Education	15 287	3 713	2 735	16 265	978	6.4
Health and community services	89 228	11 702	8 612	92 318	3 090	3.5
Cultural and recreational services	45 537	8 800	7 529	46 808	1 271	2.8
Personal and other services	55 824	10 766	9 948	56 642	818	1.5
<b>Total selected industries</b>	<b>1 963 907</b>	<b>334 689</b>	<b>286 826</b>	<b>2 011 770</b>	<b>47 863</b>	<b>2.4</b>

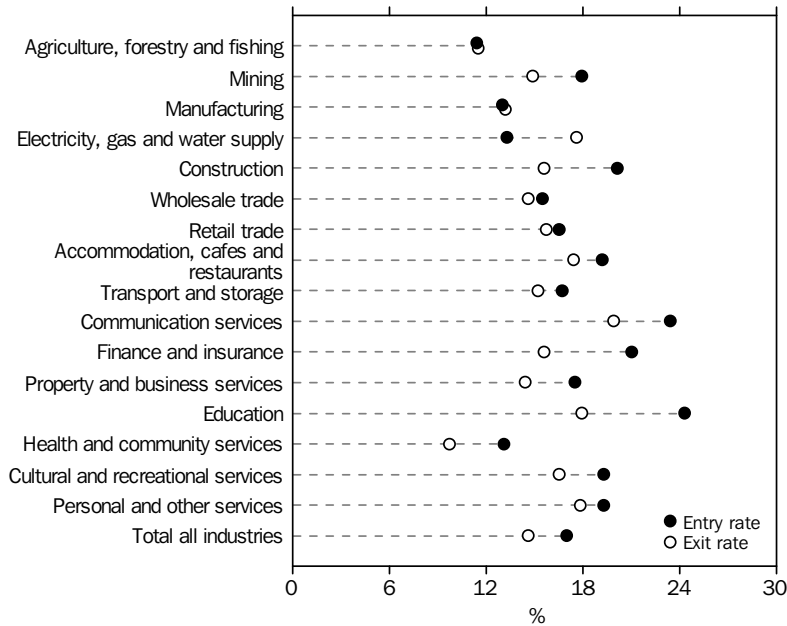
— nil or rounded to zero (including null cells)

(a) Businesses which were actively trading on the business register at June 2007 but were either not included or not actively trading at June 2006.

(b) Businesses which were actively trading on the business register at June 2006 but were either not included or not actively trading at June 2007.

Source: Counts of Australian Businesses, including entries and exits, Australia, June 2003 to June 2007 (8165.0).

### 15.8 BUSINESS ENTRY AND EXIT RATES(a)—2006–07



(a) Entry (or exit) rates are total business entries (or exits) during the year divided by total businesses operating at the beginning of the year.

Source: *Counts of Australian Businesses, including Entries and Exits (8165.0)*.

2007 were lowest for Communication services (53% and 45%), Education (56% and 49%), and Personal and other services (58% and 51%).

## Industry productivity

Multifactor productivity (MFP) statistics provide a measure of changes in technical progress/efficiency. These measures are used by both government and private organisations to help gauge the effect of changes in work practices, technology, education and training.

MFP is the ratio of a measure of output to a combination of two or more factor inputs. In simple terms, MFP represents that part of the change in production that cannot be explained by changes in the measured inputs.

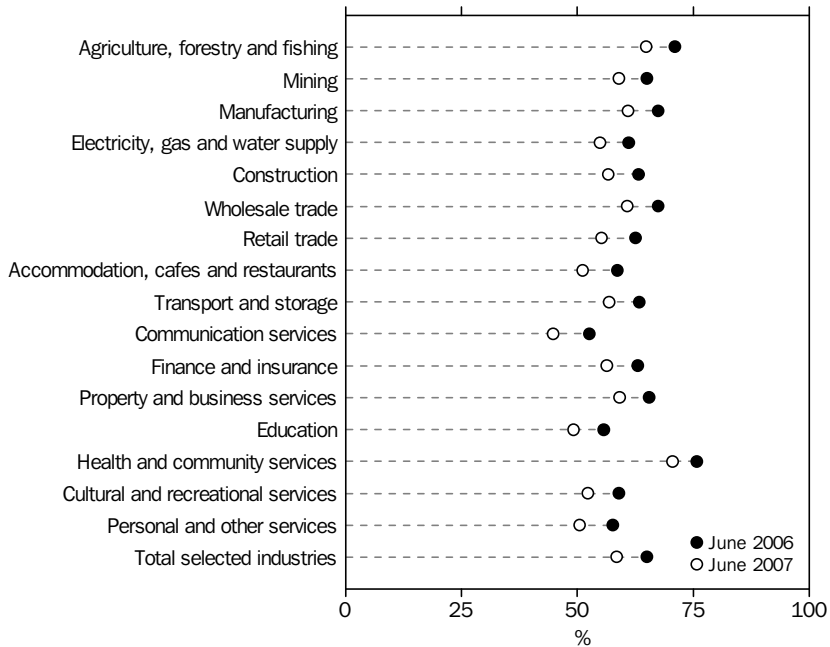
MFP statistics use industry GVA (in volume terms) as the measure of output. Two inputs are used – labour (hours worked) and capital. Capital inputs are a flow measure based on the productive capacity of capital. This means that MFP largely represents the effects of technical progress,

improvements in the work force, improvements in management practices, and economies of scale. MFP can also be affected in the short to medium term by other factors such as the weather, and by variations in capacity utilisation.

MFP measures are calculated for the market sector, an industry grouping comprising the following industries: Agriculture, forestry and fishing; Mining; Manufacturing; Electricity, gas and water supply; Construction; Wholesale trade; Retail trade; Accommodation, Cafes and restaurants; Transport and storage; Communication services; Finance and insurance; and the Cultural and recreational services industries. These are industries with marketed activities for which there are satisfactory estimates of the growth in the volume of output.

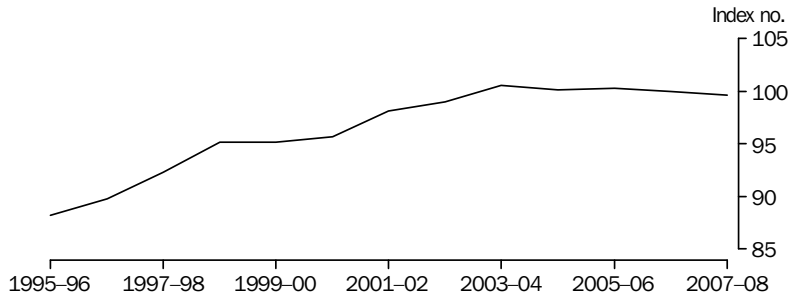
MFP statistics are available only for the market sector as a whole. During the period 1998–99 to 2003–04 (the last completed productivity cycle), the average annual rate of growth in MFP of the market sector was 1%, less than half of the 2.3% average annual rate of growth in MFP for the

**15.9 2003-04 BUSINESS ENTRIES, survival rate(a)—June 2006 and June 2007**



(a) The proportion of previously active businesses which continue to be active at 1 June.  
 Source: *Counts of Australian Businesses, including entries and exits, June 2003 to 2007 (8165.0)*.

**15.10 MULTIFACTOR PRODUCTIVITY OF THE MARKET SECTOR(a)(b)—1995-96 to 2007-08**



(a) Reference year for index is 2006-07 = 100.0. (b) Gross value added per combined unit of labour and capital.  
 Source: *Australian System of National Accounts (5204.0)*.

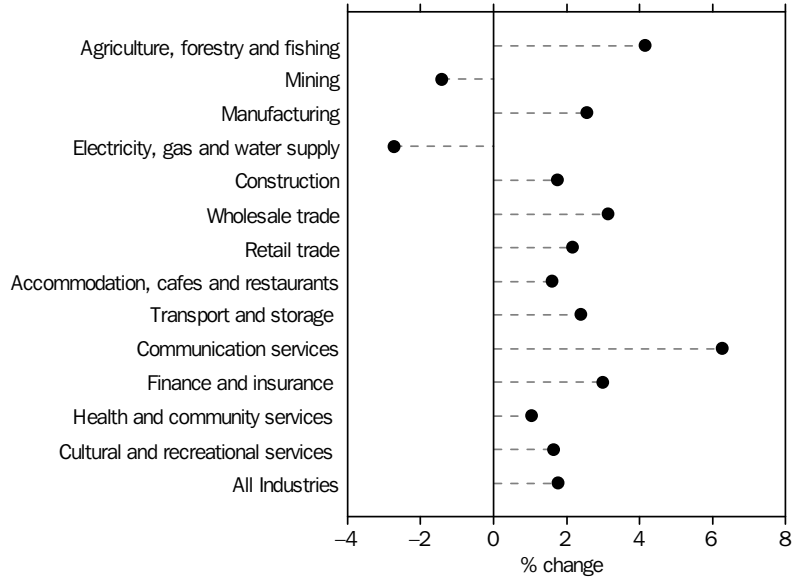
period 1993-94 to 1998-99 (the previously completed productivity cycle) (graph 15.10).

Although MFP is the more comprehensive measure of productivity, the ABS also produces industry labour productivity indexes. Labour productivity is defined as gross value added per hour worked.

Graph 15.11 shows the average annual rate of growth in labour productivity for market sector industries over the period 1997-98 to 2007-08. Over this period, the average annual growth rate of labour productivity for all industries was 2%.

Most industries increased their labour productivity. Over the period 1997-98 to

**15.11 GROSS VALUE ADDED PER HOUR WORKED(a),  
Market sector industries—1997-98 to 2007-08**



(a) Indexes of gross value added per hour worked, in chain volume measures. Reference year is 2006-07 = 100.0.

Source: Australian System of National Accounts (5204.0).

2007-08, the industries with the highest average annual growth rates in labour productivity were Communication services (6%), Agriculture, forestry and fishing (4%) and Wholesale trade

(3%). Negative growth was seen in the Electricity, gas and water supply (3%) and Mining (1%) industries.

## The Australian and New Zealand Standard Industrial Classification 2006

The *Australian and New Zealand Standard Industrial Classification* (ANZSIC) (1292.0) provides a standard framework under which business units carrying out similar productive activities can be grouped together, with each resultant group referred to as an industry.

The ANZSIC provides a basis for the standardised collection, analysis and dissemination of economic data on an industry basis for Australia and New Zealand. As well as being the standard industrial classification that underpins ABS and Statistics New Zealand industry statistics, the ANZSIC is widely used by government agencies, industry organisations and researchers for various administrative, regulatory, taxation and research purposes throughout Australia and New Zealand.

ANZSIC 2006 has been developed to provide a more contemporary industrial classification system. Changes in the structure and composition of the economy, changing user requirements and comparability with international standards have been taken into account. The 2006 edition of the ANZSIC replaces the 1993 edition.

### Changes from ANZSIC 1993

ANZSIC 2006 separately identifies 19 divisions, compared with 17 in ANZSIC 1993.

A new Information Media and Telecommunications Division has been introduced. It groups units mainly engaged in the creation and storing of information products for dissemination purposes; transmitting information products using analogue and digital signals; and providing transmission and storage services for information products. This has been identified as a rapidly growing sector in the Australian and New Zealand economies since the last review. The proposed International Standard Industry Classification of All Economic Activities, Rev.4 and North American Industry Classification System 2002 also recognise this as a separate Division.

The very large and diverse Property and Business Services Division in ANZSIC 1993, together with some other services, has been rearranged into

three new divisions in ANZSIC 2006: Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services; and Administrative and Support Services. The three separate divisions again align with the proposed ISIC, Rev.4 and NAICS 2002.

ANZSIC 2006 identifies 86 subdivisions, compared with 53 in ANZSIC 1993. The substantial increase in the number of subdivisions was driven by improvements made to the international comparability of the classification at this level and the identification of groups of economic activities with significant differences in their production functions at higher levels of the classification. Considerable change has also occurred at the lower levels of the classification.

### ANZSIC 2006

The new divisional structure for ANZSIC 2006 is as follows:

- A Agriculture, Forestry and Fishing
- B Mining
- C Manufacturing
- D Electricity, Gas, Water and Waste Services
- E Construction
- F Wholesale Trade
- G Retail Trade
- H Accommodation and Food Services
- I Transport, Postal and Warehousing
- J Information Media and Telecommunications
- K Financial and Insurance Services
- L Rental, Hiring and Real Estate Services
- M Professional, Scientific and Technical Services
- N Administrative and Support Services
- O Public Administration and Safety
- P Education and Training
- Q Health Care and Social Assistance
- R Arts and Recreation Services
- S Other Services

## **Bibliography**

### **ABS products**

*Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 and 2006* (1292.0)

*Australian Industry, 2004–05* (8155.0)

*Australian System of National Accounts, 2007–08* (5204.0)

*Counts of Australian Businesses, including Entries and Exits, Australia, June 2003 to June 2007*  
(8165.0)

*Employee Earnings and Hours, Australia, May 2008* (6306.0)

*Labour Force, Australia, Quarterly, Detailed – Electronic Delivery, May 2008* (6291.0.55.003)



## AGRICULTURE

Australian agriculture is broad ranging from extensive pastoral and cropping activities to intensive livestock and horticultural production. While it no longer contributes a large share to gross domestic product – averaging around 2.5% over the last five years – Australian agriculture utilises a large proportion of natural resources, including 54% of Australia's land area. In 2005, agriculture accounted for about 65% of water use but due to continuing scarcity of water, Australia's agricultural water use fell 27% in 2006–07 and a further 18% in 2007–08.

Australia's agricultural businesses are mainly engaged in either beef cattle farming, dairy cattle farming, sheep farming, grain growing, or a mixture of two or more of these activities. The wet summer conditions of northern Australia are suited to beef cattle grazing in inland areas and the growing of sugar and tropical fruits in coastal areas while drier summer conditions in the south favour dryland cereal farming, sheep grazing and dairy cattle (in the higher rainfall areas), as well as beef cattle farming. In recent times, the most valuable commodities produced by Australian farmers have been beef and veal, wheat, milk, vegetables, fruit and nuts, and wool.

Much of this produce is exported, with Australian wool, beef, wheat, and dairy products contributing significantly to global markets. Australia is also an important source of cotton and sugar. The main customers for exports of agricultural commodities include Japan, the United States of America, China, the Republic of (South) Korea, Indonesia and the Middle East.

In this chapter, the major source of statistics for land use, water use, commodity production and livestock numbers is the 2007–08 Agricultural Resource Management Survey (ARMS) and related supplementary collections (i.e. Apples and Pears, Vineyards, and Vegetable Collections), conducted by the Australian Bureau of Statistics (ABS). Information relating to agricultural finance is obtained from the annual Australian Agricultural and Grazing Industries Survey conducted by the Australian Bureau of Agricultural and Resource Economics.

The chapter contains the article *Biodiversity on the farm* in recognition of 2010 being the International Year of Biodiversity.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Agricultural environment

Australia's average elevation is the lowest of any continent, with a mean elevation just exceeding 200 metres. The dominant topographical feature of the continent is the Great Dividing Range, which spans the length of the eastern seaboard and has a profound influence on regional weather patterns and land use.

Australia's agricultural landscapes support a wide range of soils. Most are ancient, strongly weathered and infertile by world standards, with deficiencies in phosphorus and nitrogen. Those on floodplains are younger and more fertile. Very few are considered good quality soils for agriculture. To offset nutrient deficiencies, superphosphate and nitrogenous fertilisers are widely used, particularly on pasture and cereal crops. Fragile soil structure and a susceptibility to waterlogging are other common features of Australian soils, while large areas are naturally affected by salt or acidity. These soil characteristics restrict particular agricultural activities, sometimes ruling out agricultural activity altogether.

With the exception of Antarctica, Australia is the world's driest continent. More than a third of the continent is effectively desert; over two-thirds of the continent is classified as arid or semi-arid. The wet summer conditions of northern Australia are suited to beef cattle grazing in inland areas and the growing of sugar and tropical fruits in coastal areas. The drier summer conditions of southern Australia favour wheat and other dryland cereal farming, sheep grazing and dairy cattle (in the higher rainfall areas), as well as beef cattle. Within regions there is also a high degree of rainfall variability from year-to-year, which is most pronounced in the arid and semi-arid regions.

Rainfall variability is very high by global standards and often results in lengthy periods without rain. In the first eight years of this century, Australia experienced two of the worst droughts on record – indeed, in some parts, one long drought lasting several years was the experience. The years 2002–03 and 2006–07 provided the most widespread hardship, with record high temperatures and dry conditions in the early months of 2005 also bringing severe drought to many regions.

This variability, and seasonality of rainfall in Australia requires that water be stored. Under normal seasonal conditions, the ability of primary producers to store water ensures there are adequate supplies for those agricultural activities requiring a continuous supply. The development of large-scale irrigation schemes has opened up areas of inland Australia to agricultural activities which otherwise would not have been possible.

Evaporation is another important element of Australia's environment affecting agricultural production. Hot summers are accompanied by an abundance of sunlight. This combination of climatic variables leads to high rates of evaporation. Areas that have been cleared for crop and pasture production tend to coincide with areas that receive five to nine months of effective rainfall (where rainfall exceeds evaporation) each year. In areas of effective rainfall of more than nine months, generally only higher value crops or tropical crops and fruits are grown, while in areas with effective rainfall of less than five months, cropping is usually restricted to areas that are irrigated.

Since European settlement the vegetation of Australia has altered significantly. In particular, large areas of Australia's forest and woodland vegetation systems have been cleared, predominantly for agricultural activity. The areas that have been altered most are those which have been opened up to cultivation or intensive grazing. Other areas, particularly those semi-arid regions previously cleared of timber and scrub to allow extensive grazing of native grasses, now show signs of returning to their previous condition. In recent years various state and territory legislation has seen restrictions applied to the area of old growth and regrowth forest and woodland that can be cleared without a permit.

For more details see the *Geography and climate* chapter.

## Land use

In spite of Australia's harsh environment, agriculture is the most extensive form of land use. At 30 June 2008, the estimated total area of establishments with agricultural activity was 417.3 million hectares (mill. ha), representing 54% of the total land area – 6% of which had been cropped (table 16.1).

**16.1 LAND USE BY AGRICULTURAL ESTABLISHMENTS(a), –Year ended 30 June**

	Area cropped during year(b)	Area of establishments with agricultural activity	Proportion of Australian land area
	mill. ha	mill. ha	%
2006	24.6	434.9	56.5
2007	23.5	425.4	55.3
2008	24.4	417.3	54.2

- (a) Establishments with EVAO or turnover of \$5,000 or more.  
 (b) Excludes crops harvested for hay and seed, and pastures and grasses.

Source: Agricultural Commodities, Australia (7121.0).

Queensland had 141.1 mill. ha devoted to agricultural activity while Western Australia had 93.0 mill. ha (graph 16.2). Land area not used for agriculture consisted of unoccupied land (mainly desert in western and central Australia), Aboriginal land reserves (mainly located in the Northern Territory and Western Australia), forests, mining leases, national parks and urban areas.

**Irrigation**

The high variability in river flow and annual rainfall, which are features of the Australian environment, means that successful ongoing production of many crops and pastures is dependent on irrigation. In 2007–08, 28% (39,600) of all agricultural establishments reported irrigation activity. In total 6,300 gigalitres of irrigation water was applied in 2007–08, an average application rate of 3.4 megalitres per irrigated hectare.

Rice is only grown in areas that can guarantee an adequate supply of irrigation water. Grapes, vegetables, cotton and nurseries/cut flowers/cultivated turf are the other most intensively irrigated crops, with 96%, 93%, 85%, and 83% respectively of their total growing areas being irrigated in 2007–08. However, the total area of land irrigated, about 1.9 mill. ha in 2007–08, represents less than 1% of the total land used for agriculture (table 16.3).

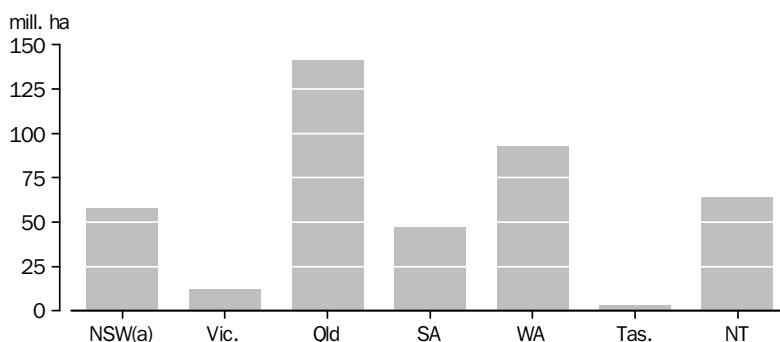
Most irrigated land is located within the confines of the Murray–Darling Basin, which covers parts of New South Wales, Victoria, Queensland and South Australia and all of the Australian Capital Territory.

**Gross value of irrigated production**

The following estimates of Gross Value of Irrigated Agricultural Production (GVIAP) have been calculated using a recently developed improved methodology. The estimates are presented in current prices, and therefore changes between years do not show the impact of changes in prices over time.

In 2006–07, irrigated agricultural land comprised less than 1% of all agricultural land in Australia. However, in the same period the gross value of production from irrigated land was \$12.3 billion(b), which represented 34% of the total gross value of agricultural production (table 16.4 and table 16.6). In 2002–03, GVIAP was \$9.3b and represented 29% of the total gross value of agricultural production. Latest estimates show the Fruit and nuts commodity group was the highest contributor to the total value of irrigated

**16.2 AREA OF ESTABLISHMENTS WITH AGRICULTURAL ACTIVITY—30 June 2008**



- (a) Includes Australian Capital Territory.

Source: Agricultural Commodities, Australia (7121.0).

### 16.3 PASTURES AND CROPS IRRIGATED – 2007–08

	NSW(a)	Vic.	Qld	SA	WA	Tas.	NT	Aust.
AREA IRRIGATED ('000 ha)								
Pasture and other crops(b)								
For grazing	126	221	^63	^70	^17	49	^—	544
For hay	^44	^45	27	^22	np	^7	np	147
For silage	^16	^32	^11	^4	*—	^3	—	^65
Rice	2	—	—	—	—	—	—	2
Other cereals(c)	200	^15	106	^8	*5	^5	—	340
Cotton	37	—	21	—	—	—	—	58
Sugar cane	*9	—	184	—	2	—	—	187
Other								
broadacre(d)	16	*7	*17	^8	np	7	np	58
Fruit and nuts etc.(e)	30	33	35	16	10	3	^3	131
Vegetables(f)	12	28	34	16	9	14	^1	114
Nurseries etc.(g)	^3	^4	^4	1	np	—	np	14
Grapevines	36	^39	^1	77	^13	1	**—	168
<b>Total(h)</b>	<b>525</b>	<b>428</b>	<b>513</b>	<b>226</b>	<b>63</b>	<b>92</b>	<b>^5</b>	<b>1 851</b>
VOLUME APPLIED (ml)								
Pasture and other crops(b)								
For grazing	^291 572	662 099	153 100	278 413	^98 698	^157 182	^400	1 641 464
For hay	^156 508	^128 870	79 542	^117 723	np	^12 634	np	501 588
For silage	^41 621	^66 588	^40 218	^9 063	np	np	—	^162 060
Rice	26 664	—	—	—	—	—	—	26 664
Other cereals(c)	571 730	^29 443	327 456	^9 073	9 902	^7 354	—	954 958
Cotton	204 646	—	104 796	—	—	—	—	309 442
Sugar cane	*3 569	—	834 414	—	25 214	—	—	863 198
Other								
broadacre(d)	^36 704	*21 407	*44 434	^52 980	^15 218	np	np	185 394
Fruit and nuts etc.(e)	135 259	162 430	106 655	94 390	48 062	6 218	^6 910	559 924
Vegetables(f)	48 081	85 970	^112 980	88 244	47 527	43 816	^4 031	430 649
Nurseries etc.(g)	^16 270	^13 289	16 110	2 450	12 541	np	np	62 257
Grapevines	135 294	^152 661	^4 700	^203 349	^17 239	^1 356	**2 191	516 790
<b>Total(h)</b>	<b>1 677 083</b>	<b>1 332 045</b>	<b>1 842 729</b>	<b>880 268</b>	<b>284 878</b>	<b>252 113</b>	<b>^15 683</b>	<b>6 284 799</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution  
 \* estimate has a relative standard error of 25% to 50% and should be used with caution  
 \*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use  
 — nil or rounded to zero (including null cells)  
 np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes ACT.  
 (b) Includes cereals and lucerne.  
 (c) Includes for grain or seed  
 (d) Includes other broadacre crops  
 (e) Includes plantation and berry fruits  
 (f) Includes vegetables for human consumption and seed  
 (g) Includes cut flowers and cultivated turf  
 (h) Includes pastures or crops not elsewhere classified.  
 Source: Water Use on Australian Farms (4618.0).

production with \$2,913m, followed by vegetables (\$2,526m) and dairy production (\$1,697m). These three commodities accounted for 58% of total GVIAP in 2006–07.

## Agricultural industry

At 30 June 2008 there were about 141,000 businesses with an estimated value of agricultural operations of \$5,000 or more (table 16.5). For the vast majority of these, their primary activity was agriculture, as defined in the *Australian and New Zealand Standard Industrial Classification*

## 16.4 GROSS VALUE OF IRRIGATED AGRICULTURAL PRODUCTION, 2002-03 TO 2006-07

	2002-03	2003-04	2004-05	2005-06	2006-07
current prices in \$m					
Commodity groups					
Cereals for grain and seed	262.9	257.6	207.3	200.3	223.2
Total hay production(a)	239.6	287.6	221.9	240.0	295.4
Cereals for hay	^ 30.3	^ 26.6	^ 17.3	(b) —	(b) —
Pastures for hay	209.3	261.0	204.6	(b) —	(b) —
Pastures for seed	^ 34.4	^ 46.2	*44.5	(c) —	(c) —
Cotton(d)	^ 834.3	658.1	^ 908.1	869.8	485.8
Rice	152.5	179.8	100.6	273.7	55.0
Sugar cane(e)	406.9	405.5	459.9	496.9	583.1
Other broadacre crops	113.7	105.7	^ 72.2	65.7	36.1
Fruit and nuts(f)	1 682.6	1 779.2	1 948.8	2 137.2	2 913.2
Grapes	1 142.7	1 482.2	1 361.9	1 251.5	1 040.5
Vegetables for human consumption and seed	1 532.7	1 856.8	1 741.3	2 411.5	2 526.2
Nurseries, cut flowers and cultivated turf	467.9	588.0	651.0	1 165.9	1 187.4
Dairy production	1 505.5	1 627.4	1 802.5	1 877.7	1 697.1
Production from meat cattle	670.9	^ 892.1	810.9	968.1	989.0
Production from sheep and other livestock	276.7	269.5	239.4	257.2	287.2
<b>Total</b>	<b>9 323.3</b>	<b>10 435.7</b>	<b>10 570.3</b>	<b>12 215.6</b>	<b>12 319.3</b>

- ^ estimate has a relative standard error of 10% to less than 25% and should be used with caution
- \* estimate has a relative standard error of 25% to 50% and should be used with caution
- nil or rounded to zero (including null cells)
- (a) Includes other crops for hay in 2005-06 and 2006-07, however from 2000-01 to 2004-05 other crops for hay is included in other broadacre crops.

- (b) Data not collected separately.
- (c) Data not collected
- (d) Includes value of cotton seed.
- (e) Includes sugar cane cut for crushing and plants.
- (f) Includes berry fruits.

Source: Experimental Estimates of the Gross Value of Irrigated Agricultural Production, 2000-01 to 2006-07 (4610.0.55.008).

(ANZSIC), 2006 (1292.0). While the remainder were undertaking some form of agricultural activity, their main activity was not in agriculture. The majority of agricultural businesses were mainly engaged in either beef cattle farming, grain growing, mixed grain/sheep/beef farming, sheep farming, or dairy cattle farming.

### Gross value of agricultural commodities produced

The contribution of agriculture to the Australian economy can be measured in a number of ways. The most direct measurement available is the gross value of agricultural production. For the year ending 30 June 2008, the gross value of agricultural production, in current prices, was \$43.3b (table 16.6). On a commodity basis, cattle and calves slaughterings contributed most to the gross value of production (\$7.4b) followed by

wheat (\$5.3b), milk (\$4.6b), vegetables (\$3.4b) and hay (\$2.8b).

### Employment

The agriculture sector is an important source of employment in regional and rural Australia. The number of people employed in the Agriculture industries increased marginally in 2008-09 to a yearly average of 318,000 persons (table 16.8). Improved farming conditions in many areas provided the encouragement for employment in the industry to increase by 5.6% with the employment of females increasing by 7.7%.

### Selected financial performance measures

Statistics of the financial performance of farm businesses provided in this section are based on

## 16.5 BUSINESSES UNDERTAKING AGRICULTURAL ACTIVITY – 30 JUNE 2008

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
	no.	no.	no.	no.	no.	no.	no.	no.	no.
<b>Agricultural industries</b>									
Nursery Production									
(Undercover plus Outdoors)	^ 260	^ 216	^ 183	*37	*49	*42	*17	1	804
Turf growing	^ 113	*37	^ 151	**13	^ 48	1	*2	—	^ 366
Floriculture Production									
(Undercover plus Outdoors)	^ 211	^ 249	^ 119	^ 83	*75	^ 29	^ 9	—	775
Mushroom Growing	^ 37	**23	*52	3	*3	3	—	—	^ 120
Vegetable Growing (Undercover plus Outdoors)	1 069	927	1 082	599	379	324	^ 47	**2	4 429
Grape Growing	1 134	1 859	*93	2 323	^ 538	^ 98	*15	**2	6 062
Kiwifruit Growing	*43	*9	—	—	**13	—	—	—	*65
Berry Fruit Growing	*74	^ 107	^ 131	*16	*29	*31	*1	—	^ 390
Apple and Pear Growing	^ 186	^ 223	*48	*129	^ 176	^ 125	**7	**2	896
Stone Fruit Growing	^ 231	^ 257	^ 157	^ 191	^ 85	^ 58	*1	—	981
Citrus Fruit Growing	^ 454	*221	^ 205	^ 260	*77	**13	—	—	1 230
Olive Growing	*101	*47	**19	*58	*34	—	—	—	^ 259
Other Fruit and Tree Nut Growing	1 423	^ 287	1 445	^ 199	^ 259	^ 58	^ 164	**2	3 837
Sheep Farming (Specialised)	4 068	3 549	^ 362	1 362	1 316	^ 473	—	18	11 148
Beef Cattle Farming plus Beef Cattle Feedlots (Specialised)	14 066	8 719	13 506	1 429	2 468	1 203	230	19	41 640
Sheep-Beef Cattle Farming	3 635	1 651	^ 487	816	^ 351	^ 276	—	^ 10	7 226
Grain-Sheep or Grain-Beef Cattle Farming	5 154	2 511	1 332	1 864	2 023	^ 163	**9	*1	13 059
Rice Growing	*43	3	—	—	—	—	—	—	*46
Other Grain Growing	3 242	3 009	1 352	3 131	2 964	**25	—	—	13 723
Sugar Cane Growing	490	—	3 264	—	^ 4	—	—	—	3 758
Cotton Growing	^ 152	—	142	—	—	—	—	—	294
Other Crop Growing(a)	^ 171	*194	^ 330	*50	*30	*50	**10	—	^ 836
Dairy Cattle Farming	1 223	5 538	762	454	^ 320	495	—	—	8 792
Poultry Farming (Meat)	345	230	^ 124	^ 75	62	^ 26	—	—	862
Poultry Farming (Eggs)	*154	^ 105	*73	*49	*28	^ 8	—	1	^ 417
Deer Farming	*28	**42	**16	*31	**18	^ 3	—	—	*138
Horse Farming	^ 565	^ 495	^ 419	^ 81	^ 116	*18	—	*4	1 697
Pig Farming	^ 177	^ 107	^ 170	114	^ 55	*19	—	—	642
Beekeeping	*140	*145	*52	^ 59	*62	**25	**6	—	^ 488
Other Livestock Farming(a)	^ 247	*171	*81	*49	*45	*18	*5	—	^ 616
<b>Total Agriculture Industries</b>	<b>39 236</b>	<b>30 931</b>	<b>26 159</b>	<b>13 475</b>	<b>11 627</b>	<b>3 583</b>	<b>522</b>	<b>62</b>	<b>125 594</b>
All Other Industries	5 203	3 246	2 962	1 522	1 457	^ 617	^ 83	^ 19	15 110
<b>Total</b>	<b>44 439</b>	<b>34 177</b>	<b>29 121</b>	<b>14 996</b>	<b>13 084</b>	<b>4 200</b>	<b>605</b>	<b>82</b>	<b>140 704</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

(a) Not elsewhere classified

Source: Agricultural Commodities, Australia, (7121.0).

information collected in the annual Australian Agricultural and Grazing Industries Survey, conducted by the Australian Bureau of Agricultural and Resource Economics (ABARE). This collection covers farm businesses engaged in the 'broadacre' grain, sheep and beef cattle farming industry, as defined in ANZSIC.

Selected financial performance measures (expressed as annual averages per farm) for all broadacre farm businesses for the years 2003–04 to 2007–08 are shown in table 16.9 and for the years 2003–04 to 2007–08 in graphs 16.10, 16.11 and 16.12. They show how the financial performance of Australian broadacre farms

## 16.6 VALUE OF COMMODITIES PRODUCED, By Australia—2005–08

	2005–06	2006–07	2007–08
current prices in \$m			
Crops			
Cereals for grain			
Wheat	5 099.2	2 618.5	5 291.9
Oats	248.7	180.5	422.5
Barley	1 417.4	1 038.9	2 244.0
Sorghum	276.0	273.7	977.4
Rice	273.7	^ 55.0	7.3
Other(a)	279.0	241.0	na
Cotton(b)	933.3	506.7	227.3
Fruit and nuts (excluding grapes)	2 626.9	3 499.2	2 757.5
Grapes	1 377.5	1 137.8	1 693.6
Hay(c)	1 450.7	1 618.6	2 817.9
Legumes for grain			
Lupins	251.1	124.9	221.5
Other(a)	406.4	254.3	na
Nursery production	1 418.0	1 447.9	1 432.8
Oilseeds			
Canola	473.4	227.2	658.6
Other(a)	54.7	^ 19.9	na
Sugar cane for crushing	1 031.8	1 221.4	861.0
Vegetables	2 878.1	3 164.6	3 362.7
All other crops(d)	300.5	247.1	842.1
<i>Total crops</i>	<i>20 796.5</i>	<i>17 877.1</i>	<i>23 818.2</i>
Livestock slaughterings and other disposals			
Cattle and calves	7 684.9	7 987.9	7 353.3
Sheep and lambs(e)	2 112.4	2 057.1	2 167.9
Pigs	890.1	943.6	901.7
Poultry	1 222.7	1 294.1	1 636.6
Other livestock	49.5	53.3	44.2
<i>Total livestock slaughterings and other disposals</i>	<i>11 959.6</i>	<i>12 335.9</i>	<i>12 103.6</i>
Livestock products			
Wool(f)	2 053.9	2 281.6	2 309.0
Whole milk	3 341.3	3 177.6	4 571.7
Eggs	375.6	387.6	467.6
<i>Total livestock products</i>	<i>5 770.8</i>	<i>5 846.8</i>	<i>7 348.3</i>
<b>Total</b>	<b>38 527.0</b>	<b>36 059.7</b>	<b>43 270.2</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

na not available

(a) Component commodity items not collected separately.

(b) Includes value of cotton seed.

(c) Includes pastures, cereals and other crops cut for hay.

(d) Not elsewhere included

(e) Excludes value of wool on skins.

(f) Includes dead wool and wool on skins.

Source: Value of Agricultural Commodities Produced, Australia (7503.0).

rebounded in 2007–08 following the record lows of the drought-stricken 2006–07 year.

Farm cash income is a measure of the cash funds available for farm investment and consumption after paying all costs incurred in production, including interest payments, but excluding capital payments and payments to family workers. It is a short-term measure of farm income because it

takes no account of depreciation on assets.

Higher grain and sorghum production along with higher grain prices and good prices for wool and lambs helped cash income make a substantial recovery from the poor drought-affected 2006–07 season (graph 16.10). In 2007–08, dairy farms recorded their highest farm cash income for over 20 years.

**16.7 VALUE OF COMMODITIES PRODUCED, By state and territory—2007–08**

	STATE AND TERRITORY							
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
	current prices in \$ m							
Crops								
Cereals for grain								
Wheat	888.7	687.6	353.4	934.4	2 418.0	9.8	na	*—
Oats	60.8	107.3	^ 4.4	^ 38.4	208.8	^ 2.8	—	*—
Barley	276.7	563.6	44.0	476.9	874.6	^ 8.3	—	—
Sorghum	339.6	—	637.2	*—	**0.5	—	—	—
Rice	7.3	—	—	—	—	—	—	—
Other(a)	na	na	na	na	na	na	na	na
Cotton(b)	148.0	—	79.2	—	—	—	—	—
Fruit and nuts								
(excluding grapes)	478.0	688.8	^ 1 060.3	249.3	173.8	67.0	^ 40.1	0.2
Grapes	342.1	398.1	32.8	762.8	124.1	27.7	5.4	0.7
Hay(c)	671.9	1 327.4	201.4	187.1	353.2	62.2	^ 14.7	^ 0.1
Legumes for grain								
Lupins	^ 13.7	^ 14.0	**0.6	23.6	169.3	*0.2	—	—
Other(a)	na	na	na	na	na	na	na	na
Nursery production	274.2	^ 527.7	^ 342.0	68.2	166.7	41.9	9.6	^ 2.6
Oilseeds								
Canola	44.4	125.9	**0.2	84.3	403.2	0.7	—	—
Other(a)	na	na	na	na	na	na	na	na
Sugar cane for crushing	^ 58.5	—	799.0	—	3.6	—	—	—
Vegetables	423.7	762.9	995.1	584.3	345.2	236.3	^ 15.1	*0.2
All other crops(d)	236.6	95.9	251.0	122.2	82.8	46.1	**7.3	*0.2
Total crops	4 264.3	5 299.3	4 800.4	3 531.5	5 323.8	502.9	92.3	3.9
Livestock slaughterings and other disposals								
Cattle and calves	1 585.0	1 231.7	3 314.7	247.9	487.4	159.6	322.6	4.2
Sheep and lambs(e)	441.9	869.3	56.9	347.3	409.5	41.7	—	1.4
Pigs	265.8	116.2	233.8	np	np	np	—	—
Poultry	568.1	452.4	315.0	np	np	np	—	—
Other livestock	8.2	11.6	14.7	1.7	3.3	—	4.7	—
Total livestock slaughterings and other disposals	2 869.0	2 681.2	3 935.1	935.0	1 121.0	229.4	327.3	5.6
Livestock products								
Wool(f)	814.2	492.1	102.9	324.2	503.1	71.2	—	1.3
Whole milk	509.2	3 052.0	251.6	294.8	131.8	332.4	—	—
Eggs	133.8	133.7	105.0	21.5	^ 56.1	9.8	**—	7.6
Total livestock products	1 457.2	3 677.9	459.4	640.5	691.0	413.4	**—	8.9
<b>Total</b>	<b>8 590.4</b>	<b>11 658.4</b>	<b>9 195.0</b>	<b>5 106.9</b>	<b>7 135.8</b>	<b>1 145.7</b>	<b>419.6</b>	<b>18.4</b>

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\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

na not available

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Component commodity items not collected separately.

(b) Includes value of cotton seed.

(c) Includes pastures, cereals and other crops cut for hay.

(d) Not elsewhere included

(e) Excludes value of wool on skins.

(f) Includes dead wool and wool on skins.

Source: Value of Agricultural Commodities Produced, Australia (7503.0).

### 16.8 AGRICULTURE INDUSTRIES(a), Employment(b)(c)

	Males	Females	Persons
	'000	'000	'000
2005	204.4	102.6	307.0
2006	201.8	98.7	300.5
2007	206.0	100.2	306.2
2008	204.9	96.0	300.9
2009	214.1	103.4	317.6

- (a) Excludes Services to Agriculture Industries.  
 (b) Employed persons include persons who worked without pay for at least one hour per week in a family business or on a farm (i.e. unpaid family helpers). Persons who worked in another industry and in agriculture are classified to the industry of predominant activity, according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.  
 (c) Annual average of quarterly data ended May quarter.  
 Source: Labour Force, Australia, Detailed – Electronic Delivery (6291.0.55.003).

Despite better seasonal conditions and higher prices for grains, wool and lambs, average farm business profit was still a negative amount in 2007–08. However, at –\$21,300 this farm average level is an improvement on the –\$70,200 suffered in 2006–07 (graph 16.11). Farm business profit is a longer-term measure of the profitability of farms because it takes account of depreciation and inventory changes.

For the broadacre industries as a group, rate of return (excluding capital appreciation) averaged 0.8% in 2007–08 (graph 16.12), up from –0.8% in 2006–07.

## Agricultural production

### Crops

In 2007–08, 24.4 mill. ha was sown to crops, excluding land used for pastures and grasses. Western Australia cropped 7.4 mill. ha while New South Wales and South Australia cropped 6.8 mill. ha and 4.3 mill. ha respectively (table 16.13). Wheat was Australia's biggest crop in terms of area used with 12.6 mill. ha planted, or about half the land area dedicated to cropping. In production terms, sugar cane cut for crushing reaped the most plentiful harvest with 32.6 mill. tonnes (table 16.14).

In Australia, cereals are divided into autumn-winter-spring growing (winter cereals) and spring-summer-autumn growing (summer cereals). In temperate regions winter cereals such as wheat, oats, barley and rye are often grown in rotation with pastures, such as subterranean clover, medics or lucerne, and with other winter crops such as canola, field peas and lupins. Rice, maize and sorghum are summer cereals, often

### 16.9 BROADACRE FARM BUSINESSES(a), Selected financial performance measures

Annual average per farm		2003–04	2004–05	2005–06	2006–07	2007–08
Total cash receipts	\$'000	295.0	381.7	336.2	359.3	415.1
less Total cash costs	\$'000	230.0	308.9	266.0	329.5	352.8
Farm cash income	\$'000	65.0	72.8	70.2	29.8	62.4
Farm business profit	\$'000	4.5	3.7	–7.7	–70.2	–21.3
Profit at full equity(b)	\$'000	30.4	32.4	23.3	–28.5	32.3
plus Capital appreciation	\$'000	213.0	193.0	190.2	273.5	78.0
Profit at full equity (incl. capital appreciation)	\$'000	243.4	225.4	213.5	245.0	110.3
Farm capital at 30 June	\$'000	2 521.1	3 131.2	3 277.5	3 756.8	4 207.3
Rate of return (excl. capital appreciation)(c)	%	1.3	1.1	0.8	–0.8	0.8
Rate of return (incl. capital appreciation)(c)	%	10.8	7.8	7.0	7.0	2.7
Off-farm income(d)	\$'000	27.0	27.6	32.1	37.4	37.5

- (a) Businesses classified to Group 014 (except 0143 Beef Cattle Feedlots (Specialised)) in the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.  
 (b) Farm business profit, plus rent, interest and finance lease payments less depreciation on leased items.  
 (c) Derived by expressing profit at full equity as a percentage of total opening capital.  
 (d) Collected for owner-manager and spouse only. Includes income from wages, other businesses, investment and social welfare payments. Average for those responding farms for which details of off-farm income are available for both owner-manager and spouse.  
 Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Farm Surveys Results'.

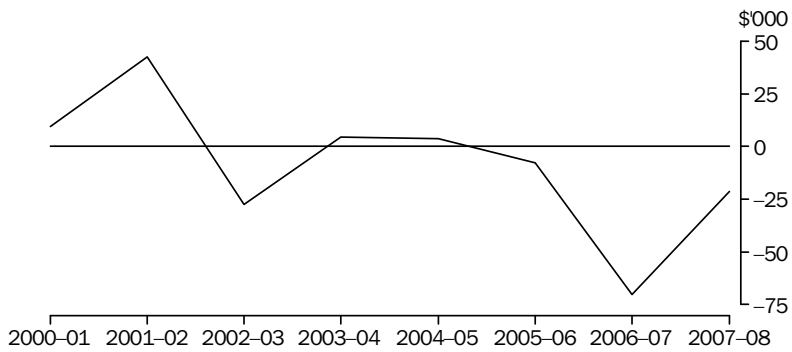


**16.10 BROADACRE FARM BUSINESSES, Farm average cash income**



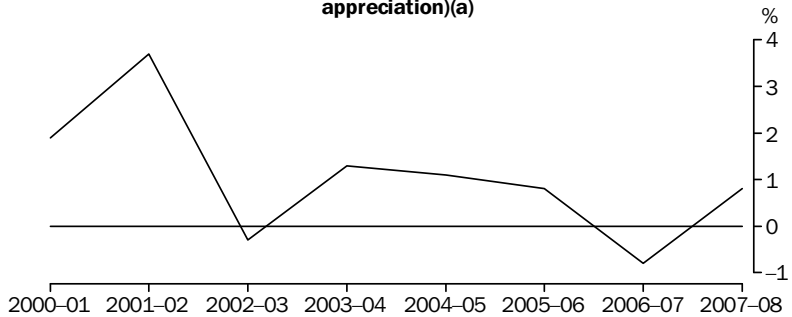
Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Farm Surveys Results 2006-07 to 2008-09.'

**16.11 BROADACRE FARM BUSINESSES, Farm average business profit**



Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Farm Surveys Results 2006-07 to 2008-09.'

**16.12 BROADACRE FARM BUSINESSES, Rate of return (excluding capital appreciation)(a)**



(a) Computed by expressing profit at full equity as a percentage of total opening capital.

Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Farm Surveys Results 2006-07 to 2008-09.'

### 16.13 AREA OF CROPS(a)

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha
2005–06	6 941	3 252	2 503	4 168	7 623	68	9	1	24 565
2006–07	6 687	3 428	2 215	4 450	6 669	62	*19	^—	23 530
2007–08	6 816	3 655	2 183	4 257	7 396	52	*14	*1	24 374

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

— nil or rounded to zero (including null cells)

(a) Excludes crops harvested for hay and seed, and pasture and grasses

Source: Agricultural Commodities, Australia (7121.0).

### 16.14 SELECTED CROPS, Area and production

	AREA			PRODUCTION		
	2005–06	2006–07	2007–08	2005–06	2006–07	2007–08
	'000 ha	'000 ha	'000 ha	'000 t	'000 t	'000 t
<b>Crops for grain</b>						
Barley	4 406	4 182	4 902	9 482	4 257	7 160
Grain sorghum	767	613	942	1 932	1 283	3 790
Oats	930	1 003	1 238	1 688	748	1 502
Rice	102	^20	2	1 003	^163	18
Wheat	12 443	11 798	12 578	25 150	10 822	13 569
Lupins	809	736	752	1 285	470	662
<b>Other crops</b>						
Sugar cane cut for crushing	398	409	381	37 128	36 397	32 621
Cotton lint	327	164	69	560	282	119
Canola	972	1 052	1 277	1 419	573	1 214
<b>Other fruit</b>						
Bananas	11	12	10	187	213	207
Grapes (bearing)	158	164	166	1 981	1 530	1 957
<b>Vegetables</b>						
Carrots	6	6	5	265	271	273
Potatoes	35	34	38	1 250	1 212	1 400
Tomatoes	8	^7	7	450	296	382
Onions	5	5	5	222	246	254
Mushrooms	—	—	—	44	43	47

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

— nil or rounded to zero (including null cells)

Source: Agricultural Commodities, Australia, (7121.0).

being grown in rotation with winter cereals in some areas.

#### Wheat

Wheat is produced in all states but primarily on the mainland in a narrow crescent known as the wheat belt. Inland of the Great Dividing Range, the wheat belt stretches in a curve from central Queensland through New South Wales, Victoria and southern South Australia. In Western Australia, the wheat belt continues around the

south-west of the state and some way north, along the western side of the continent.

Graph 16.17 shows wheat production in Australia from 1908 to 2008.

In 2007–08, farmers planted 12.6 mill. ha to wheat and harvested 13.6 mill. tonnes. Western Australia planted and harvested the most wheat followed by New South Wales and South Australia (table 16.16 and graph 16.18). In 2007–08, just over half of Australia's wheat was exported for human consumption. A small proportion of production is

### 16.15 SELECTED ORCHARD CROPS, Tree numbers and production(a)

	NUMBER OF TREES			PRODUCTION		
	2005-06	2006-07	2007-08	2005-06	2006-07	2007-08
	'000 trees	'000 trees	'000 trees	'000 t	'000 t	'000 t
<b>Orchard fruit</b>						
Oranges	6 553	6 612	6 053	507	471	409
Mandarins	1 613	1 448	1 340	92	104	^ 94
Apples	8 833	8 590	8 685	276	270	265
Pears (including Nashi)	1 776	1 741	1 729	142	135	130
Peaches	2 246	2 356	2 270	91	82	68
Mangoes	1 437	1 452	1 287	36	58	49

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

(a) Number of trees refers to trees of bearing age.  
Source: Agricultural Commodities, Australia, (7121.0).

### 16.16 PRODUCTION AND AREA OF SELECTED CROPS – 2007-08

		NSW	Vic.	Qld	SA	WA	Tas.	Aust. (a)
Wheat								
Production	'000 tonnes	2 477	1 995	954	2 296	5 820	27	13 569
Area	'000 ha	4 009	1 514	669	2 121	4 258	7	12 578
Oats								
Production	'000 tonnes	193	335	^12	^115	840	^8	1 502
Area	'000 ha	464	211	^20	^142	397	^4	1 238
Barley								
Production	'000 tonnes	814	1 789	143	1 672	2 719	^22	7 160
Area	'000 ha	1 049	1 107	113	1 244	1 381	^8	4 902
Grain sorghum								
Production	'000 tonnes	1 270	—	2 519	*—	**2	—	3 790
Area	'000 ha	279	**—	661	*—	**1	—	942
Rice								
Production	'000 tonnes	18	—	—	—	—	—	18
Area	'000 ha	2	—	—	—	—	—	2
Canola								
Production	'000 tonnes	79	221	**—	162	752	1	1 214
Area	'000 ha	310	196	**2	173	595	1	1 277
Cotton lint								
Production	'000 tonnes	77	—	42	—	—	—	119
Area	'000 ha	40	—	29	—	—	—	69
Sugar cane cut for crushing								
Production	'000 tonnes	^ 2 587	—	29 788	—	247	—	32 621
Area	'000 ha	^ 24	—	355	—	2	—	381

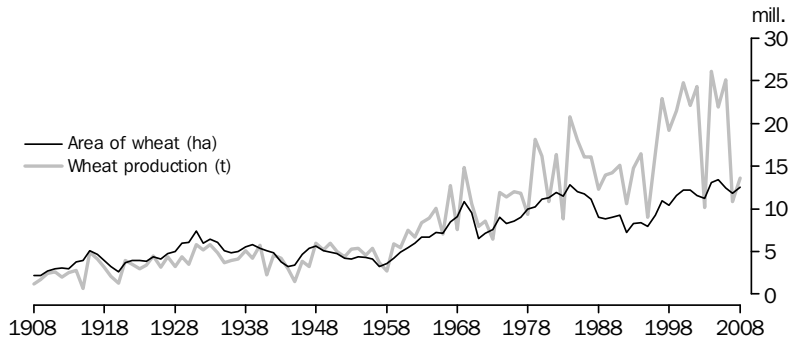
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\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use  
— nil or rounded to zero (including null cells)

(a) Includes NT and ACT.  
Source: Agricultural Commodities, Australia (7121.0).

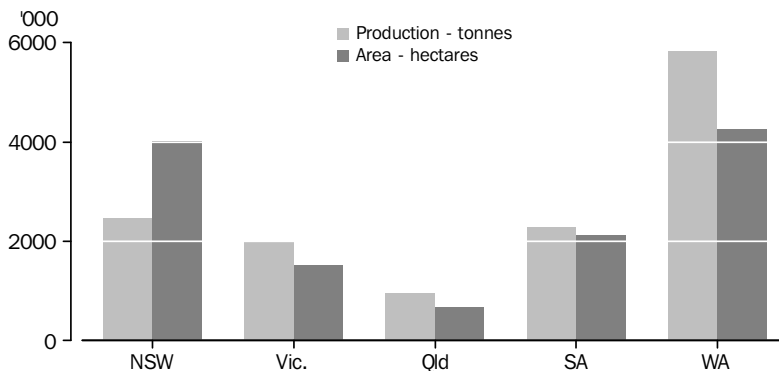
### 16.17 WHEAT PRODUCTION (a)— 1908–2008



(a) Due to the scale of this graph breaks in the time series have not been noted

Source: *Historical Selected Agricultural Commodities, by State (7124.0)*.

### 16.18 WHEAT PRODUCTION AND AREA, BY STATE -- 2007-08



Source: *Agricultural Commodities, Australia, (7121.0)*.

used domestically for human consumption, with lower quality grain being used for domestic stock feed.

New varieties of wheat have enabled it to be grown in more marginal areas. In particular the development of dual purpose winter wheat varieties which, like oats, allow grazing of the plant up to a few months prior to harvest, have become very popular in some areas.

#### Oats

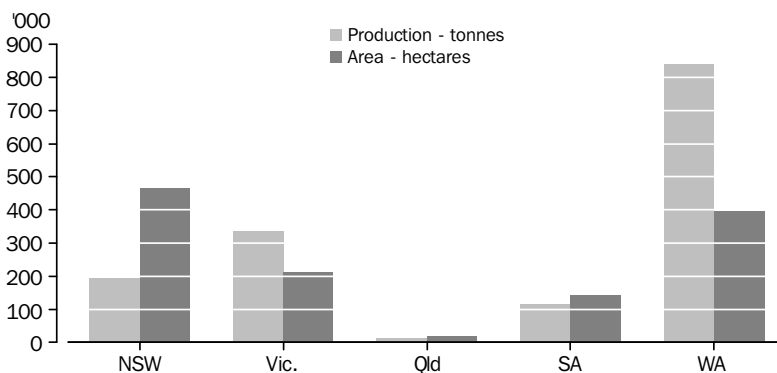
Oats are traditionally grown in moist, temperate regions. However, improved varieties and management practices have enabled oats to be grown over a wider range of soil and climatic conditions. Oats have a high fodder feed value and, with the exception of dual purpose varieties

of wheat, produce a greater bulk of growth than other winter cereals. They need less cultivation, and respond well to superphosphates and nitrogen. Oats have two main uses – as a grain crop, and as a fodder crop. Fodder crops can either be grazed in the initial stages of growth and then locked up for a period prior to harvesting for grain, or else mown and baled for hay or cut for chaff.

The majority of Australian oats harvested for grain is used domestically for stock feed purposes. A small proportion of high quality grain is used either domestically or exported for human consumption.

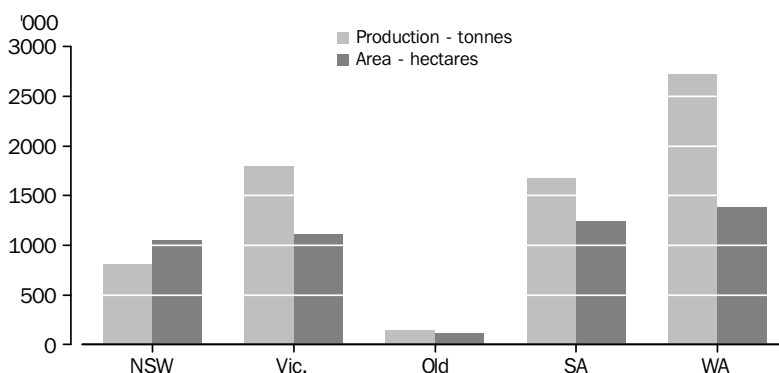
In 2007–08, farmers planted 1.2 mill. ha of oats and harvested 1.5 mill. tonnes. Western Australia produced the most oats (840,000 tonnes),

### 16.19 OATS PRODUCTION AND AREA BY STATE—2007-08



Source: Agricultural Commodities, Australia, (7121.0).

### 16.20 BARLEY PRODUCTION AND AREA BY STATE—2007-08



Source: Agricultural Commodities, Australia, (7121.0).

followed by Victoria (335,000 tonnes) (table 16.16 and graph 16.19).

#### Barley

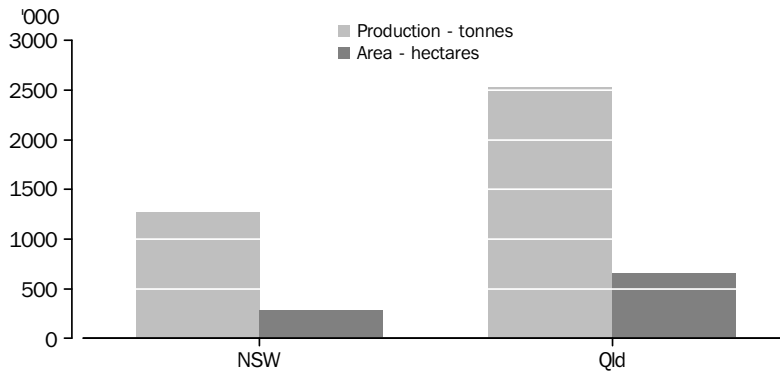
This cereal contains two main groups of varieties, 2-row and 6-row (the number of rows referring to the number of rows of seed on each stalk). The former is generally, but not exclusively, preferred for malting purposes. Barley is grown principally as a grain crop, although in some areas it is used as a fodder crop for grazing, with grain being subsequently harvested if conditions are suitable. It is often grown as a rotation crop with wheat, oats and pasture. As barley has a short growing period, it may provide quick grazing or timely fodder supplies when other sources are not available. Barley grain may be crushed to meal for stock feed or sold for malting.

In 2007–08, 7.2 mill. tonnes of barley were harvested from 4.9 mill. ha (table 16.16 and graph 16.20). The largest areas planted were in Western Australia (1.4 mill. ha), South Australia (1.2 mill. ha), and Victoria (1.1 mill. ha). Production was highest in Western Australia with 2.7 mill. tonnes, followed by Victoria and South Australia, 1.8 mill. tonnes and 1.7 mill. tonnes of barley respectively.

#### Grain sorghum

The sorghums are summer growing crops which are used in a number of ways: grain sorghum for grain; sweet or fodder sorghum, Sudan grass and Columbus grass for silage, green feed and grazing; and broom millet for brooms and brushware. However, the grain is used primarily as stock feed and is an important source for

### 16.21 GRAIN SORGHUM PRODUCTION AND AREA BY STATE—2007-08



Source: *Agricultural Commodities, Australia (7121.0)*.

supplementing other coarse grains for this purpose.

Grain sorghum was only grown during 2007–08 in significant quantities in Queensland and New South Wales, with the former growing 2.5 mill. tonnes on 661,000 ha (table 16.16 and graph 16.21).

#### Rice

Almost all of Australia's rice is grown in New South Wales, with production centred in the Murrumbidgee Irrigation Area. Rice production is dependent on supplies of irrigation water and, therefore, is significantly affected by reductions in irrigation water allocations available to farmers.

In 2007–08, rice plantings covered 2,000 ha and produced 18,000 tonnes (table 16.16).

#### Vegetables

Australia produces an extremely wide variety of vegetables, driven largely by demand from a cosmopolitan population. Many vegetables, such as spring onions, mushrooms and fresh tomatoes are grown close to major capital cities, taking advantage of proximity to markets and low transport costs. However, the majority of vegetables are produced in the major irrigation areas of each state and territory, where access to land and water are the key drivers of investment.

In 2007–08, potatoes were by far the largest vegetable crop in terms of both area and production, covering 38,200 ha and growing 1.4 mill. tonnes (table 16.14). South Australia,

Victoria and Tasmania produced almost 80% of the total potato crop. Tomato production ranked second with Victoria and Queensland producing 80% of the 382,000 tonnes grown nationally.

#### Fruit (excluding grapes)

A wide variety of fruit is grown in Australia, ranging from tropical fruit such as mangoes and bananas in the north to pome, stone and berry fruits in temperate regions. The most significant crops in terms of production weight in 2007–08 were oranges, apples and bananas (tables 16.14 and 16.15).

#### Grapes

Grapes are a temperate crop requiring predominantly winter rainfall and warm to hot summer conditions for ripening. Almost all grape production in Australia depends on irrigation water as a supplement to rainfall. An absence of late-spring frosts is essential to prevent the loss of developing fruit. Grapes are grown for winemaking, drying and table use. The better known grape producing areas include the Adelaide Hills, Barossa Valley, Clare Valley, Riverland, McLaren Vale and Coonawarra (all in South Australia); Sunraysia and the Yarra Valley (Victoria); the Hunter and Riverina (New South Wales); the Swan Valley and Margaret River (Western Australia); and the Tamar Valley and Coal River Valley (Tasmania).

In 2007–08, Australia's vineyards produced 2.0 mill. tonnes of grapes on 166,000 ha. Tables 16.22 and 16.23 show the area of vines and the quantity

### 16.22 VITICULTURE, Area and production

	AREA		PRODUCTION OF GRAPES FOR			TOTAL
	Bearing	Total	Winemaking	Drying	Table	Quantity
					and other	
	'000 ha	'000 ha	'000 t fresh weight	'000 t fresh weight	'000 t fresh weight	'000 t fresh weight
2005–06	158	169	1 782	118	82	1 981
2006–07	164	174	1 371	81	79	1 530
2007–08	166	173	1 837	56	64	1 957

Source: Agricultural Commodities, Australia (7121.0).

### 16.23 VITICULTURE, Area and production – 2007–08

	AREA			PRODUCTION OF GRAPES FOR			
	Bearing	Not yet	All	Winemaking	Drying	Table	Total
		bearing	vines			and other	
	'000 ha	'000 ha	'000 ha	'000 tonnes fresh weight	'000 tonnes fresh weight	'000 tonnes fresh weight	'000 tonnes fresh weight
Red grapes	98.0	2.4	100.5	984.1	4.8	34.4	1 023.3
White grapes	68.2	4.0	72.2	852.9	51.4	29.2	933.5
<b>Total</b>	<b>166.2</b>	<b>6.5</b>	<b>172.7</b>	<b>1 837.0</b>	<b>56.1</b>	<b>63.6</b>	<b>1 956.8</b>

Source: Agricultural Commodities, Australia (7121.0); Australian Wine and Grape Industry (1329.0).

of grapes produced. South Australia produced 41% of the total grape harvest with 812,000 tonnes while New South Wales (554,000 tonnes) and Victoria (477,000 tonnes) also produced large quantities (table 16.24).

#### Canola

Canola is Australia's most commonly grown oilseed crop and is used in the production of oil and as a protein source in stock feed. Over the past four years canola has accounted for about 90% of the value of all oilseed production. Canola was first planted in Australia in 1980 but it was not until the late 1980's that high yielding blackleg-resistant varieties started to become available. By the early 1990's, production was becoming more widespread and canola was emerging as the main oilseed crop. From a

production level of 70,000 tonnes in 1990–91, the record high of 2.8 mill. tonnes was achieved nine years later in 1999–2000. In 2007–08 farmers harvested 1.2 mill. tonnes, just over double the previous year's crop weight (table 16.14 and graph 16.25).

#### Cotton

Cotton is grown mainly in inland areas of northern New South Wales and southern Queensland, primarily for its fibre (lint), and relies heavily on irrigation water to produce profitable yields. When the cotton is mature, seed cotton is taken to a gin where it is separated (ginned) into cotton lint and cotton seed. The lint is used for yarn while the cotton seed is further processed at an oil mill, where the short fibres (linters) remaining on the cotton seed after

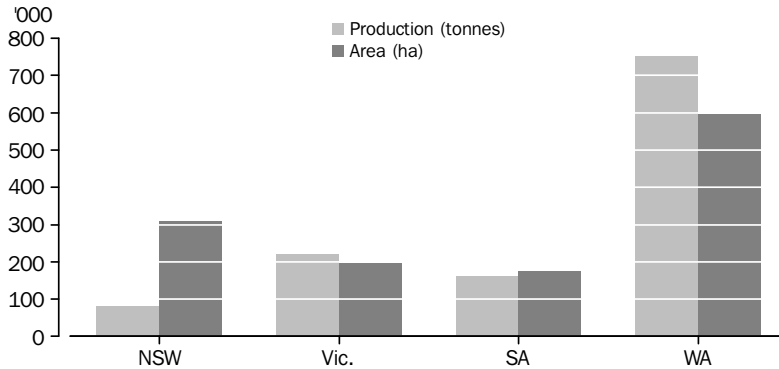
### 16.24 VITICULTURE, Grape production(a)— 2007–08

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Winemaking	535 989	394 551	3 307	809 113	82 197	10 749	—	1 128
Drying	8 742	45 677	69	1 472	179	—	—	—
Table and other	9 679	36 614	11 237	930	4 045	—	1 116	—
<b>Total production</b>	<b>554 410</b>	<b>476 842</b>	<b>14 612</b>	<b>811 515</b>	<b>86 421</b>	<b>10 749</b>	<b>1 116</b>	<b>1 128</b>

— nil or rounded to zero (including null cells)  
(a) Fresh weight.

Source: Agricultural Commodities, Australia, (7121.0).

### 16.25 CANOLA PRODUCTION AND AREA, By state—2007–08



Source: *Agricultural Commodities, Australia (7121.0)*.

ginning are removed. These fibres are too short to make into cloth, but are used for wadding, upholstery and paper. The seeds are then separated into kernels and hulls. The hulls are used for stock feed and as fertiliser, while the kernels are crushed to extract oil. The oilcake residue (crushed kernels) is ground into meal, which is a protein roughage, and is used as a stock feed.

In 2007–08, cotton lint production was estimated at 119,000 tonnes from 69,000 ha harvested (table 16.14). New South Wales was the dominant growing state with 65% of total production (77,000 tonnes) on 40,000 ha. Queensland harvested 29,000 ha and produced 42,000 tonnes of cotton lint.

#### Sugar

Sugar cane is grown commercially in Australia along the east coast over a distance of more than 2,000 kilometres from Maclean in northern New South Wales to Mossman in Queensland. Small quantities are also grown in the north of Western Australia. In 2007–08 a total of 381,000 ha of sugar cane was cut for crushing (table 16.14).

More than 90% (29.8 mill. tonnes) of the 32.6 mill. tonnes of sugar cane cut in 2007–08 was grown in Queensland from 355,000 ha (table 16.16).

#### Livestock

Cattle, sheep and pigs are the main livestock grown in Australia and have been present since the earliest days of European settlement.

Tables 16.26 and 16.27 show the number of cattle, sheep and lambs, and pigs from 2005–06 to 2007–08.

#### Cattle

Cattle farming occurs in all states and territories. While dairy cattle are restricted mainly to southern and coastal districts, beef cattle are concentrated in Queensland and New South Wales.

Beef cattle production is often combined with cropping, dairying and sheep. In the northern half of Australia, cattle properties and herd sizes are very large, pastures are generally unimproved, fodder crops are rare and beef is usually the only product. The industry is more intensive in the south, with higher stocking rates per hectare, improved pastures and use of fodder crops, rotational grazing practices and increased inputs such as fertiliser and animal health products.

Cattle numbers in Australia increased to a peak of 31.8 mill. in 1976 after which time seasonal conditions and profitability saw numbers drop dramatically. For the five years from 1984 the size of the herd remained relatively stable. Between 1989 and 1998 cattle numbers increased gradually, despite unfavourable weather conditions continuing in many parts of Australia. After a slight decline in 1999, cattle numbers



## 16.26 LIVESTOCK NUMBERS, By Australia – Year ended 30 June

	2006	2007	2008
	'000	'000	'000
<b>Cattle</b>			
Milk(a)			
Cows in milk and dry	1 880	1 796	1 640
All other milk cattle(b)	908	868	897
<b>Total</b>	<b>2 788</b>	<b>2 663</b>	<b>2 537</b>
Meat			
Cows and heifers one year and over	13 197	12 800	13 472
All other meat cattle(c)	12 409	12 573	11 312
<b>Total</b>	<b>25 606</b>	<b>25 373</b>	<b>24 784</b>
<b>Sheep and lambs</b>			
Breeding ewes one year and over	48 605	46 431	45 411
Other sheep(d)	42 423	39 280	31 526
<b>Total</b>	<b>91 028</b>	<b>85 711</b>	<b>76 938</b>
<b>Pigs</b>			
Breeding sows	302	286	263
Other pigs(e)	2 431	2 319	2 149
<b>Total</b>	<b>2 733</b>	<b>2 605</b>	<b>2 412</b>

(a) Excludes house cows.

(b) Includes heifers 1 to 2 years, heifers over 2 years, bulls and calves.

(c) Includes bulls, steers and calves.

(d) Includes rams, marked lambs, wethers, hoggets and non-breeding ewes.

(e) Includes boars, gilts, suckers, weaners, growers and finishers.

Source: Agricultural Commodities, Australia (7121.0).

increased to 27.9 mill. in 2002. Dry conditions over much of the country in 2002–03 saw cattle numbers fall but improved conditions in some regions in the following three years resulted in the national herd reaching a 30 year high of 28.4 million head. A return to drier weather has since seen numbers decline.

Graph 16.28 shows total cattle (milk and meat) numbers in Australia from 1888 to 2008.

By 30 June 2008, the Australian cattle herd numbered 27.3 mill. head consisting of 2.5 mill. milk cattle and 24.8 mill. meat cattle. Victoria had the most milk cattle (1.6 mill.) while Queensland grazed the most meat cattle (11.7 mill.) (table 16.27).

### Sheep

Sheep numbers reached a peak of 180 mill. in Australia in 1970. In general, numbers have fallen

since then. Poor market prospects for wool after 1990 had a marked impact on the flock size with sheep numbers falling rapidly until 1995, after which there was a gradual decline until 1999. By 30 June 2003, sheep and lambs had fallen to 99.3 mill. with numbers being severely affected by drought conditions throughout much of the country. Following a slight recovery in 2004 and 2005, sheep and lamb numbers in 2008 fell to 76.9 mill.head – their lowest level in 88 years – as the industry, already feeling the effects of drought, reacted to falling demand for wool and higher lamb prices. New South Wales carried the most stock with 26.4 mill. head followed by Western Australia (17.7 mill.) and Victoria (16.8 mill.) (table 16.27).

Graph 16.29 shows total sheep and lamb numbers in Australia from 1888 to 2008.

### Pigs

Pig farming is a highly intensive industry. The majority of pigs are grown in specially designed sheds which provide a controlled environment conducive to the efficient production of large numbers of animals. Recent changes in the Australian pig industry have seen many smaller producers leave the industry and existing producers increase their size of operations in an attempt to remain viable.

In 2008, pigs numbered 2.4 mill. head with New South Wales the dominant state (770,000 head), followed by Queensland (610,000) and Victoria (394,000) (table 16.27).

### Poultry

Poultry farming is also a highly intensive industry, with the majority of poultry raised in large sheds which provide the birds with a stable environment protected from the elements. The poultry farming industry consists of two streams - meat production and egg production – both being major users of feed grains. Egg production has begun to move towards layer hens being housed in non-caged systems. In June 2008, poultry farmers were holding 73.9 mill. chickens for meat production and 14.8 mill. for egg production (table 16.30).

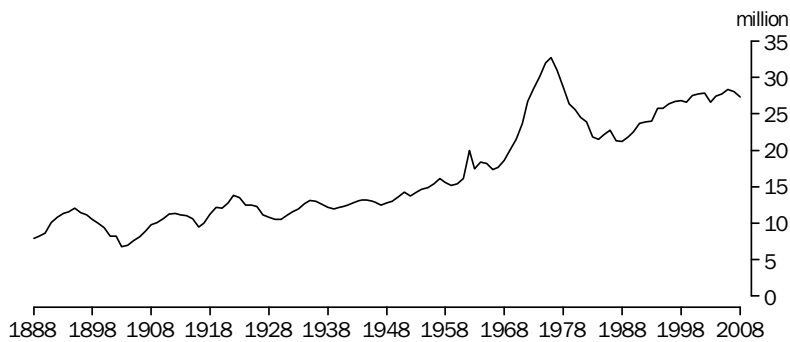
**16.27 LIVESTOCK, By state and territory – 2007–08**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
	'000	'000	'000	'000	'000	'000	'000	'000
<b>Cattle</b>								
Milk(a)								
Cows in milk and dry	195	1 055	100	103	54	134	—	—
All other milk cattle(b)	126	529	74	57	^ 47	^ 64	—	—
Total	321	1 583	174	160	101	198	—	—
Meat								
Cows and heifers one year and over	2 982	1 206	6 113	533	1 217	224	^ 1 193	4
All other meat cattle(c)	2 348	1 049	5 617	433	796	220	^ 848	^ 2
Total	5 330	2 254	11 731	966	2 013	444	^ 2 041	6
Sheep and lambs								
Breeding ewes one year and over	15 799	9 680	2 044	6 059	10 580	1 217	**—	32
Other sheep(d)	10 579	7 085	1 916	3 924	7 074	920	**—	29
Total	26 378	16 765	3 960	9 983	17 654	2 137	**—	61
Pigs								
Breeding sows	^ 87	^ 42	60	39	^ 33	2	**—	—
Other pigs(e)	*684	^ 352	550	324	^ 228	11	—	—
Total	^ 770	^ 394	610	363	262	13	**—	—

- ^ estimate has a relative standard error of 10% to less than 25% and should be used with caution
- \* estimate has a relative standard error of 25% to 50% and should be used with caution
- \*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use
- nil or rounded to zero (including null cells)
- (a) Excludes house cows.

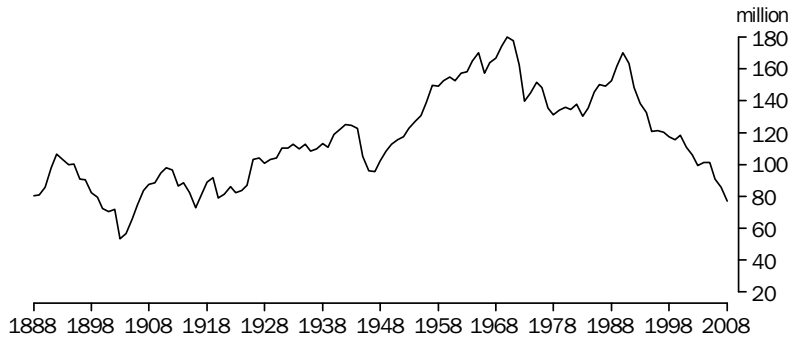
- (b) Includes heifers 1 to 2 years, heifers over 2 years, bulls and calves.
  - (c) Includes bulls, steers and calves.
  - (d) Includes rams, marked lambs, wethers, hoggets and non-breeding ewes.
  - (e) Includes boars, gilts, suckers, weaners, growers and finishers.
- Source: Agricultural Commodities, Australia (7121.0).

**16.28 CATTLE(a)—1888 to 2008**



(a) Due to the scale of this graph, breaks in the time series have not been noted  
 Source: Historical Selected Agricultural Commodities, By State (7124.0).

### 16.29 SHEEP AND LAMBS(a) —1888 to 2008



(a) Due to the scale of this graph, breaks in time series have not been noted.

Source: *Historical Selected Agricultural Commodities, By State (7124.0)*.

### 16.30 POULTRY – YEAR ENDED 30 JUNE

	CHICKENS (a)			OTHER POULTRY			
	Chickens for egg production '000	Meat chickens (broilers) '000	Total chickens '000	Ducks '000	Turkeys '000	Other poultry '000	Total '000
2006	15 936	78 448	94 384	766	1 166	701	97 017
2007	15 271	82 114	97 385	906	1 975	491	100 757
2008	14 760	73 869	88 629	na	na	na	na

na not available

(a) Includes breeding stock.

Source: *Agricultural Commodities, Australia (7121.0)*; ABS data available on request, *Poultry and Game Birds Slaughtered Survey*.

## Livestock products

### Milk

Dairying is a major Australian agricultural industry. The estimated gross value of dairy production at farm-gate prices in 2007–08 was \$4,572m (table 16.31), which was a 44% increase

on the previous year and represented 11% of the gross value of agricultural production.

Most dairy production occurs in high rainfall coastal fringe areas where climate and natural resources allow production to be based on year-round pasture grazing. This enables efficient, low-cost milk production. With the exception of

### 16.31 WHOLE MILK INTAKE BY FACTORIES, Production, use and value

	Market milk sales by factories	Milk used in the manufacture of dairy products	Total milk production	Gross value
	ML	ML	ML	\$m
2003–04	1 976	8 100	10 076	2 809
2004–05	2 017	8 110	10 127	3 194
2005–06	2 066	8 023	10 089	3 342
2006–07	2 160	7 422	9 582	3 178
2007–08	2 205	7 007	9 212	4 572

Source: *Value of Agricultural Commodities Produced (7503.0)*; *Livestock Products Australia (7215.0)*; *Dairy Australia*.

### 16.32 LIVESTOCK AND POULTRY SLAUGHTERED FOR HUMAN CONSUMPTION

	Cattle	Calves	Sheep	Lambs	Pigs	Chickens(a)	Other fowls and turkeys(b)	Ducks and drakes
	mill. head	mill. head	mill. head	mill. head	mill. head	mill. head	mill. head	mill. head
2004–05	8.0	0.9	11.4	17.3	5.3	437.6	10.2	4.7
2005–06	7.6	0.8	11.8	18.7	5.4	437.9	10.8	5.2
2006–07	8.2	0.9	13.3	20.2	5.3	453.9	10.8	5.4
2007–08	7.9	0.9	11.9	20.9	5.2	459.1	12.4	6.1
2008–09	7.9	0.8	11.3	20.8	4.5	474.8	12.4	6.3

(a) Excludes NT and Tas.

(b) Comprises hens, roosters, etc.

Source: Livestock Products, Australia (7215.0); ABS data available on request, Poultry and Game Birds Slaughtered Survey.

### 16.33 PRODUCTION OF MEAT

	CARCASS WEIGHT					DRESSED WEIGHT		
	Beef	Veal	Mutton	Lamb	Pig meat	Total red meat	Chicken meat(a)	Total poultry(a)(b)
	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t
2004–05	2 133	29	237	354	388	3 142	750	791
2005–06	2 050	28	244	382	389	3 092	773	817
2006–07	2 196	31	271	413	382	3 292	812	855
2007–08	2 127	28	258	435	377	3 226	797	841
2008–09	2 120	28	235	423	324	3 130	832	876

(a) Excludes NT, Tas and ACT.

(b) Includes other fowls, turkeys, ducks and drakes.

Source: Livestock Products, Australia (7215.0); ABS data available on request, Poultry and Game Birds Slaughtered Survey.

several inland river schemes, pasture growth generally depends on natural rainfall. Feedlot-based dairying is expanding, although it remains uncommon.

Milk production over the last decade has been in decline following industry deregulation and several years of less than favourable seasonal conditions. In 2007–08, the trend continued with total milk production falling 370 million litres (4%) to 9,212 million litres (table 16.31).

Average annual per person milk consumption has stabilised at around 100 litres since the mid-1980's. According to Dairy Australia data for 2007–08, Australians consumed 104 litres of milk, 11.8 kilograms of cheese, 6.9 kilograms of yoghurt and 4.1 kilograms of butter/blends per person.

In 2007–08 Australia exported dairy products valued at \$2.6b (1.4% of total merchandise exports). Milk, cream and milk products (excluding butter and cheese) contributed \$1.4b, while cheese and curd, and butter and other fats

and oils derived from milk brought in \$968m and \$195m respectively.

#### Meat production and slaughterings

Tables 16.32 and 16.33 show details of slaughtering and meat production from abattoirs, and from commercial poultry and other slaughtering establishments. They include estimates of animals slaughtered on farms and by country butchers. The data relate only to slaughtering for human consumption and do not include animals condemned or those killed for boiling down.

Production of beef in 2008–09 was virtually static at 2,120,000 tonnes (table 16.33).

In 2008–09, lamb production decreased 12,000 tonnes (3%) to 423,000 tonnes while mutton production decreased 23,000 tonnes (9%) to 235,000 tonnes.

Significant changes have taken place in the pig meat producing industry in recent years. Capital investment and corporate takeovers have seen

### 16.34 GROSS VALUE OF LIVESTOCK SLAUGHTERINGS AND OTHER DISPOSALS

	Cattle and calves	Sheep and lambs(a)	Pigs	Poultry	Total(b)
	\$m	\$m	\$m	\$m	\$m
2003-04	6 658.8	2 038.8	878.9	1 280.8	10 896.0
2004-05	7 828.8	1 949.0	906.0	1 303.7	12 030.2
2005-06	7 684.9	2 112.4	890.1	1 222.7	11 959.6
2006-07	7 987.9	2 057.1	943.6	1 294.1	12 335.9
2007-08	7 353.3	2 167.9	901.7	1 636.6	12 103.6

(a) Excludes the value of wool on skins.

(b) Includes value of other livestock.

Source: Value of Agricultural Commodities Produced, Australia (7503.0).

### 16.35 EXPORTS OF FRESH, CHILLED OR FROZEN MEAT

	BEEF (a)		VEAL		MUTTON		LAMB		PORK Meat
	Bone-in	Bone-out	Bone-in	Bone-out	Bone-in	Bone-out	Bone-in	Bone-out	
	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	
2004-05	44.6	959.4	3.3	5.8	101.7	41.8	106.5	21.7	43.5
2005-06	52.2	890.6	3.3	5.8	106.9	41.5	119.5	26.5	44.0
2006-07	52.4	971.5	3.8	5.8	124.9	42.8	127.5	29.0	41.3
2007-08	57.2	917.5	3.7	5.0	119.5	43.8	134.1	32.5	39.1
2008-09	48.0	955.2	4.1	4.6	107.0	44.1	131.5	31.4	32.3

(a) Includes buffalo meat.

Source: Livestock Products, Australia (7215.0).

the emergence of a few large companies producing a significant proportion of all pig meat sold in Australia. These moves, and the trend to more intensive and efficient production techniques, have seen pig meat production rise steadily since the mid-1970s when production dipped to a low of 174,000 tonnes. Recently there has been a reduction in pig meat production with a fall of 14% to 324,000 tonnes in 2008-09.

Table 16.34 shows the gross value of livestock slaughterings over recent years. The 2007-08 value of total slaughterings and other disposals decreased by 2% to \$12.1b. Poultry slaughterings

increased by 26% in 2007-08 to \$1.6b, while cattle and calf slaughterings decreased by 8% to \$7.4b.

Table 16.35 shows the volume of exports of fresh, chilled or frozen meat. In 2008-09, beef was again Australia's major meat export with shipments of bone-out beef being the major component at 955,200 tonnes, 4% more than the previous year. Exports of bone-in lamb fell back 2% in 2008-09 after the previous year's record and exports of pork meat fell by 17%.

As in recent years, Japan, the United States of America and the Republic of (South) Korea continued to be the best customers for Australian

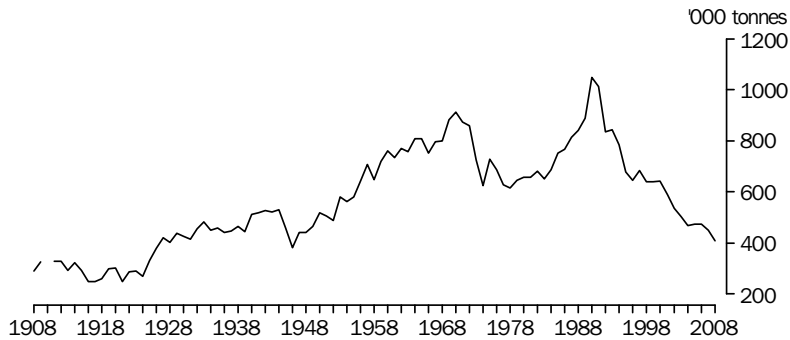
### 16.36 LIVE SHEEP AND CATTLE EXPORTS(a)

	SHEEP				CATTLE			
	Number	Gross weight	Gross value	Unit value	Number	Gross weight	Gross value	Unit value
	'000	'000 t	\$'000	\$	'000	'000 t	\$'000	\$
2004-05	3 233.2	166.1	206 678	63.9	573.7	191.7	374 060	652.0
2005-06	4 247.7	209.5	291 452	68.6	548.8	182.7	357 793	652.0
2006-07	4 137.9	198.8	288 697	69.8	638.0	216.1	437 427	685.6
2007-08	4 069.0	197.0	286 442	70.4	713.3	241.2	450 511	631.6
2008-09	4 063.5	199.0	339 048	83.4	857.7	286.0	563 770	657.3

(a) Number of live animals exported, other than pure-bred breeding animals.

Source: Livestock Products, Australia (7215.0).

### 16.37 WOOL PRODUCTION(a)—1908 to 2008



(a) Shorn, dead & fell mongered, 1906-73. From 1974, shorn wool received by brokers & dealers.

Source: ABS data available on request.

beef. In 2008–09, Japan imported the most Australian beef with 368,000 tonnes although shipments were 2% less than the previous year. The United States of America was Australia's next best customer with 281,000 tonnes, an increase of 16% on the previous year. The Republic of (South) Korea purchased 127,000 tonnes.

Table 16.36 shows the number, gross weight, gross value and unit value of live sheep and cattle exported for slaughter. The number of live sheep exported for slaughter in 2008–09 numbered 4.1 million head – on par with the previous year – while the gross value of these exported sheep increased 18% to \$339m. The number of live cattle exported for slaughter in 2008–09 increased 20% to 857,700 head, the highest level since 2002–03.

#### Wool

Australia is the world's largest wool producer, accounting for about a quarter of total production. In the last twenty years wool production has more than halved, to around 459,000 tonnes in 2007–08. Almost all of Australia's wool is exported, the major markets being China, Italy and India.

Graph 16.37 shows total wool production for the years 1908 to 1973 and then shorn wool from 1974 onwards.

Shorn greasy wool contains an appreciable amount of grease, dirt, vegetable matter and other material. The exact quantities of these impurities in the fleece vary with climatic and

pastoral conditions, seasonal fluctuations and the breed and condition of the sheep. It is, however, the clean wool fibre that is ultimately consumed by the textile industry, and the term 'clean yield' is used to express the net wool fibre content present in greasy wool.

The gross value of wool produced in 2007–08 increased 1% on the previous year to \$2.3b (table

#### 16.38 WOOL, PRODUCTION AND VALUE

	Shorn wool	Other wool(a)	Total	Gross value
	'000 t	'000 t	'000 t	\$m
2004–05	475.2	44.4	519.7	2 195.5
2005–06	486.7	47.4	534.2	2 053.9
2006–07	450.5	51.8	502.3	2 281.6
2007–08	407.9	50.9	458.7	2 309.0

(a) Comprises dead and fellmongered wool, and wool exported on skins.

Source: Value of Agricultural Commodities Produced, Australia (7503.0); ABS data available on request.

#### 16.39 TAXABLE WOOL RECEIVALS

	RECEIVALS			Brokers as proportion of total receivals
	Brokers	Dealers	Total	
	'000 t	'000 t	'000 t	%
2004–05	383.5	82.2	465.7	82.3
2005–06	383.1	89.4	472.5	81.1
2006–07	361.9	88.6	450.5	80.3
2007–08	330.4	77.5	407.9	81.0
2008–09	295.0	75.6	370.6	79.6

Source: Livestock Products, Australia (7215.0).

16.38), approaching a third of the \$5.9b recorded in 1988–89, the peak year in the wool boom of the 1980's.

The total amounts of taxable wool received by brokers and purchased by dealers in recent years

are shown in table 16.39. They exclude wool received by brokers on which tax had already been paid by other dealers (private buyers) or brokers.

## Biodiversity on the farm

When famous English poet William Cowper wrote in 1785 “*Variety’s the very spice of life, that gives it all its flavour*” he could well have been writing a definition for biodiversity and its relationship with agricultural production.

However, as the word biodiversity was not coined for another 200 years, it is the more modern and scientific description that prevails today : biodiversity “is the variety of all life forms on Earth: the different plants, animals and micro-organisms, their genes, and the terrestrial, marine and freshwater ecosystems of which they are a part” (consultation draft version - Australia’s Biodiversity Conservation Strategy 2010–20).

Biodiversity is essential for our existence and is intrinsically valuable in its own right. It supports economies and cultures and forms the basis of our primary production industries, such as agriculture, forestry and fisheries, and provides services to those industries.

Despite the work of governments, conservation groups and individuals, biodiversity in Australia is still in decline. It is therefore important that as the stewards of 54% of Australia’s total land area, farmers continue to adopt and maintain practices that will protect and conserve the variety in our ecosystems.

### Protecting and conserving biodiversity

Farmers are intimately connected to the land and depend on healthy ecosystems to provide soil health, nutrient and waste recycling, pollination from insects, sediment control and clean water. The consultation draft version of Australia’s Biodiversity Conservation Strategy 2010–2020 has identified climate change, invasive species, loss/degradation of habitat, unsustainable use of natural resources, changes to the aquatic environment, and inappropriate fire regimes as key threats; all of which will impact significantly on farmers and farming.

To secure an environmentally sustainable and profitable future, farmers need to continue to employ a range of strategies. Depending on local issues, land managers should secure and enhance critical intact habitats; restore ecological function to critically degraded landscapes through

sustainable practices; increase cover of native vegetation to enhance ecological connectivity across fragmented landscapes and build local knowledge and capacity for long-term stewardship of the environment (consultation draft version of the Australia’s Biodiversity Conservation Strategy 2010–2020).

The good news is that work is already underway and while these practices to protect habitats may not be new they are being better measured. In the Agricultural Census of 2005–06, 7% of Australia’s farmers reported that in the previous 12 months they had collectively fenced off 1.3 million ha of degraded or saline land areas, trees and shrubs, creeks and rivers, and remnant vegetation with 35,800 kilometres of new fencing to protect these areas from grazing. At the same time, 4.2 million trees and shrubs were planted for nature conservation purposes and a further 6.3 million for the protection of land and water areas.

The ABS Natural Resource Management Survey, 2006–07, identified that natural resource management practices to prevent or manage weeds, pests and land and soil were employed on 94% of Australian farms with 65.8% of land managers reporting they had improved their natural resource management practices during 2006-07. Of these, 89% reported doing so to increase productivity, 88% to achieve farm sustainability and 75% to improve environmental protection.

Results from the 2007–08 ABS Agriculture and Resource Management survey of agricultural businesses showed that of the 417.3 million hectares of land managed by agricultural businesses, 9.2 million hectares had been set aside specifically for conservation/ protection purposes by just over 50,000 (36%) of the land managers.

In addition 63% of all agricultural businesses reported making one or more land management changes over the last 5 years to address land and soil related problems on their holding. In relation to land management practices to protect the natural environment, 52% of agricultural businesses reported undertaking activities to protect native vegetation, 45% reported activities



### 16.40 FARMER ACTIVITY SUPPORTING BIODIVERSITY, Percentage by state and territory–2007–08

	NSW(a)	Vic	Qld	SA	WA	Tas.	NT	Aust.
	%	%	%	%	%	%	%	%
Land set aside for conservation(b)	^ 2.9	3.7	2.1	3.8	1.9	9.7	^ 0.6	2.2
Activities to protect natural environment								
Protect native vegetation(c)	45.3	56.4	48.3	57.6	63.5	49.3	^ 49.1	51.5
Protected wetlands(d)	38.8	45.4	41.8	44.5	55.8	^ 51.7	^ 44.3	44.7
Protected river and creek banks(e)	42.7	59.1	51.4	39.4	53.6	50.2	^ 33.8	49.1
Land management practices undertaken								
Managing soil salinity(f)	7.5	8.5	4.0	12.7	16.5	^ 5.5	*4.7	8.3
Monitoring ground cover in paddocks(f)	59.3	53.5	53.2	45.7	54.5	50.9	^ 35.5	54.4
Surface water management(f)	78.8	67.8	81.8	59.1	79.4	70.6	63.5	74.4
Intensive effluent management(f)	6.0	16.9	6.1	5.7	4.6	13.1	*4.1	8.7
Manage soil acidity(f)	15.2	21.3	11.4	8.2	27.2	32.7	^ 13.1	16.8
Applied lime(g)	71.9	86.3	57.9	np	84.5	71.3	np	75.9
Applied dolomite(g)	^ 6.7	^ 5.6	^ 18.4	np	^ 10.7	41.4	np	10.7
Planted acid tolerant crops or pasture(g)	^ 11.9	*2.6	*5.4	**4.1	*2.4	—	—	5.6
Changed fertiliser type(g)	16.0	^ 13.4	^ 22.1	^ 23.4	^ 9.5	np	np	14.8

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes ACT.

(b) Land conserved as a percentage of total area of agricultural holdings.

(c) Agricultural businesses protecting native vegetation on holding as a percentage of all agricultural businesses reporting native vegetation.

(d) Agricultural businesses protecting wetlands on holding as a percentage of all agricultural businesses reporting wetlands.

(e) Agricultural businesses protecting river and creek banks as a percentage of all agricultural businesses reporting rivers and creeks.

(f) Agricultural businesses undertaking specific land management practices as a percentage of all agricultural businesses.

(g) Agricultural businesses undertaking specific soil acidity management practices as a percentage of all businesses managing soil acidity.

Source: Land Management and Farming in Australia, 2007–08 (4627.0).

to protect wetlands and 49% reported activities to protect river or creek banks. Of the 110,585 land managers involved in stock grazing, 69% monitored ground cover in paddocks with 57% of these having a minimum target for ground cover levels.

### Government funded projects to improve biodiversity on farms

There are a range of Commonwealth, state and territory and local government programs directed

at improving biodiversity on farms. Listed below are some examples of federally funded programs.

#### New South Wales

Rangari Creek biodiversity increase: Planting of 1,500 native trees and shrubs to stabilise the creek banks and create a wildlife corridor. Benefits: erosion halted and increase in the birdlife.

## Victoria

Jarraahmond Landcare Group create plant corridors: Conserved pockets of wildlife habitat were connected to create a continuous native corridor. Benefits: habitat provided for threatened and endangered fauna and agreements from landholders to maintain the improvements and increase biodiversity on their farms.

## Queensland

Kin Kin Creek rescue effort: Landholders combined to save a shrinking sub-tropical rainforest. Benefits: landholders able to develop vegetation corridors linking property and regenerated rainforest, as well as attracting rare fauna.

## South Australia

Sustaining the South programme: Undertaking of activities including fencing native vegetation and wetlands, farm forestry and planting of native vegetation. Benefits: creation of wildlife corridors and the establishment of windbreaks providing habitat for native species and tangible shelter and production benefits for the landholders.

## Western Australia

Moora landholder revitalises farm environment: Controlling a salinity problem on a mixed stock and grain farm near Moora with the planting of 10,300 trees and the erection of 8 kilometres of fencing to protect remnant vegetation. Benefits: remnant vegetation protected and the spread of salinity reduced.

## Tasmania

Protecting King Island's natural environment: Providing incentives to land managers to protect and restore high priority bush and streams on their properties. Benefits: protection for 1,000 ha of bushland and 40 kilometres of river-side

vegetation as well as rare species. Water quality also restored.

## Northern Territory

Saving an oasis: Landowner and Landcare group fenced off nearly 8 kilometres of a permanent freshwater lake and established 6 watering points away from the lake to supply cattle. Benefits: prevention of foreshore degradation and provision of a safe haven for migratory birds while still providing for livestock.

## Australian Capital Territory

Rebuilding Reedy Creek: Restoration of creek with tree plantings, fencing and rock to establish wildlife corridors, minimise erosion, regenerate ground cover and grasses and improve water quality. Benefits: stabilised creek, improved water and an increase in bird and butterfly numbers.

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## FORESTRY AND FISHING

This chapter outlines the main features of two important primary industries in Australia – forestry and commercial fishing.

Australia's native and plantation forests are an important natural resource. They provide the majority of timber and paper products used by Australians and support other products and services, such as honey, wildflowers, natural oils, firewood and craft wood. Forests also protect soils and water resources, and have the valuable capability to absorb harmful carbon gases. As well, forests are the foundation for a broad range of cultural and spiritual experiences, and recreational and educational activities.

Australia's wood and paper products industries include hardwood and softwood sawmilling, plywood and panels manufacturing, woodchip production and export, and the pulp and paper industries. While providing most of its sawn timber needs, Australia is still a net importer of forest products.

The *Australian Fishing Zone* (AFZ) covers offshore waters from 3 to 200 nautical miles seaward of the territorial sea baseline of Australia and its external territories and is the third largest in the world. Of the 6,000 species of marine and freshwater fish, crustaceans and molluscs occurring in the waters in and around Australia, less than 10% are commercially harvested. Aquaculture is a rapidly growing primary industry, accounting for over 40% of the total gross value of production of the Australian seafood industry in 2007–08 (up from around 23% in 1997–98).

A significant proportion of Australian fisheries production is exported with around 43% of Australia's edible fish exports (excluding live) going to Hong Kong. Japan, the United States of America, Chinese Taipei and Singapore are also important markets. Historically, Australia has been a net importer of fisheries products in volume terms but a net exporter in value terms. In recent years, the gap between imports and exports has closed and in 2007–08 Australia became a net importer of fisheries products in value terms.

The value of production or gross value added of the forestry and fishing industry for 2008–09 was \$4,970 million (m), an increase of 8.7 per cent over the previous financial year.

Most of the material on forestry in this chapter was provided by the Bureau of Rural Sciences and that on fishing provided by the Australian Government Department of Agriculture, Fisheries and Forestry.

This chapter contains the article *Biodiversity and the Australian fishing sector*.

## Forestry

Australia's native and plantation forests are an important natural resource providing a wide range of products and valuable services to the community.

Australia is one of the most biologically diverse countries and the forests of south-western Australia are one of the world's 34 recognised biodiversity 'hotspots'. Forests protect soil and water resources, and are increasingly being recognised for their potential as carbon sinks through their ability to absorb carbon from the atmosphere. They are also the foundation for a broad range of cultural and spiritual experiences for diverse groups of people and a major tourist attraction for Australian and overseas visitors, providing for a vast array of recreational and educational activities.

Australia's native and plantation forests provide the majority of the timber and a significant proportion of the paper products used by Australians. Employment and wealth flow directly from manufacturing the wood products, such as sawn timber, fibreboard, plywood and paper, derived from the forests. These forests and plantations also support a variety of other products and services, such as honey, wildflowers, natural oils, firewood and craft wood.

The National Forest Policy Statement, agreed by Australian state and territory governments in 1992, sets out a vision for management of Australia's forests that integrates environmental, commercial and community values and uses. These values are embodied in regional forest agreements negotiated for New South Wales, Victoria, Western Australia and Tasmania.

As a member of the international forest initiative – the Montreal Process – Australia has contributed to the development of the criteria and indicators for the conservation and sustainable management of temperate and boreal forests. Australia has adopted the internationally agreed criteria, and revised the indicator set to reflect its own unique forests, providing a consistent framework for monitoring and reporting on the status of its forests. Information is collected covering the themes of biological diversity, productive capacity, forest health, soil and water values, carbon, socioeconomic, and legal and institutional frameworks. The information is compiled every five years by the

National Forest Inventory (NFI), within the Bureau of Rural Sciences, to produce *Australia's State of the Forests Report*.

Australia's forestry and forest products industries are important components of Australia's primary and secondary industry sectors. They are particularly important in providing economic development and employment in many regions of rural Australia. The industries include native forest and plantation management, log harvesting and transport, hardwood and softwood sawmilling, plywood and panels manufacturing, woodchip production and export and the pulp and paper industries. Estimates of employment in the forestry and forest products industries range from 77,000 people to 120,000 people, depending on the employment categories included.

The hardwood and softwood sawmilling industries comprise mills of diverse sizes and types that process wood into sawn timber and other products such as mouldings and flooring. The hardwood mills are generally small scale and scattered. The softwood mills are generally larger and more integrated with other wood-processing facilities.

## Forest estate

### Native forest

A forest is defined by the NFI as an area incorporating all living and non-living components, dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding two metres, and with an existing or potential crown cover of over-storey strata about equal to or greater than 20%. This definition includes Australia's diverse native forests, regardless of age. It is also sufficiently broad to encompass areas of trees that are sometimes described as woodlands.

Based on this definition, the total area of native forest reported in the latest *Australia's State of the Forests Report* is estimated at 147.4 million hectares (mill. ha), which is about 19% of Australia's land area (table 17.1).

Some 107.8 mill. ha (73%) of native forest are on public land and 38.1 mill. ha (26%) are on private land, with the remaining 1% on land of unresolved tenure. The 107.8 mill. ha of forests growing on public land consists of 65.1 mill. ha (60%) on leasehold tenure, 22.4 mill. ha (21%) in

### 17.1 NATIVE FOREST AREAS – 2008

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha
<b>DOMINANT CANOPY SPECIES</b>									
Eucalypt									
Tall	3 421	1 562	177	—	213	1 101	—	28	6 501
Medium	17 228	4 110	33 825	356	9 508	1 264	18 213	81	84 586
Low	289	105	2 404	1 179	3 888	65	8 176	7	16 115
Mallee	210	1 504	60	6 256	1 217	—	—	—	9 247
Total	21 148	7 281	36 466	7 791	14 826	2 430	26 389	116	116 447
Acacia	1 333	41	6 060	239	1 123	72	1 496	—	10 365
Melaleuca	48	24	5 698	14	62	19	1 690	—	7 556
Rainforest	495	18	1 867	—	5	593	302	—	3 280
Casuarina	1 168	131	61	671	82	1	114	—	2 229
Mangrove	5	2	436	14	164	—	359	—	980
Callitris	1 540	25	597	118	1	1	315	—	2 597
Other	473	314	1 397	7	1 400	—	344	7	3 942
<b>Total</b>	<b>26 208</b>	<b>7 837</b>	<b>52 581</b>	<b>8 855</b>	<b>17 665</b>	<b>3 116</b>	<b>31 010</b>	<b>123</b>	<b>147 397</b>
<b>TENURE</b>									
Public									
Multiple use forest(a)	1 980	3 163	1 991	—	1 248	1 026	—	—	9 408
Nature Conservation Reserve(b)	5 148	3 505	4 576	4 029	3 868	1 121	16	108	22 371
Other Crown land(c)	943	109	1 598	277	7 169	85	674	7	10 862
Leasehold(d)	9 891	35	34 304	3 083	3 891	—	13 920	8	65 132
Total	17 962	6 812	42 469	7 389	16 176	2 232	14 610	123	107 773
Private(e)	8 076	1 025	8 908	1 399	1 489	885	16 317	—	38 099
Unresolved tenure	170	—	1 204	67	—	—	83	—	1 524
<b>Total</b>	<b>26 208</b>	<b>7 837</b>	<b>52 581</b>	<b>8 855</b>	<b>17 665</b>	<b>3 116</b>	<b>31 010</b>	<b>123</b>	<b>147 397</b>

— nil or rounded to zero (including null cells)

(a) Publicly-owned land managed for multiple use including wood production.

(b) Public land on which wood production is excluded (National Parks, etc).

(c) Reserved areas of educational, scientific and other public institutional land, including easements, Defence land, and other minor tenure classifications.

(d) Crown land leased for private use where the right to harvest or clear land must be approved by state/territory governments. Often known as pastoral leases.

(e) Land held under freehold title and private ownership including land held by designated indigenous communities under freehold title with special conditions attached.

Source: Australia's State of the Forests Report 2008, National Forest Inventory, Bureau of Rural Sciences.

nature conservation reserves, 10.9 mill. ha (10%) on other Crown land, and 9.4 mill. ha (9%) managed by state forest authorities for multiple uses including wood production, recreation and informal reserves. Including forested leasehold land and private freehold forest, some 103.2 mill. ha, or 70% of Australia's native forests, are privately managed.

Most of Australia's forests are dominated by eucalypts, which include trees in the genera *Eucalyptus*, *Corymbia* and *Angophora* (table 17.1). The second most extensive forest type is acacia. Despite the predominance of these forest types, Australia's forests are very diverse. There are more than 700 species of eucalypts and

almost 1000 Acacia species, as well as many other genera of trees in forests that vary widely in their species composition and structure and in the fauna they support.

### Plantations

Australia's plantation estate continued to expand in 2008. The total recorded area of plantation established reached 2.0 mill. ha in 2008 (table 17.2). This was an increase of 70,000 ha (3.7%) over 2007 and of nearly 20% over the past five years. The proportion of hardwood species has increased to 48% of the total with softwood species making up just over half (51%) of the total area (graph 17.3). About 95% of the softwood plantations are *Pinus radiata* and other

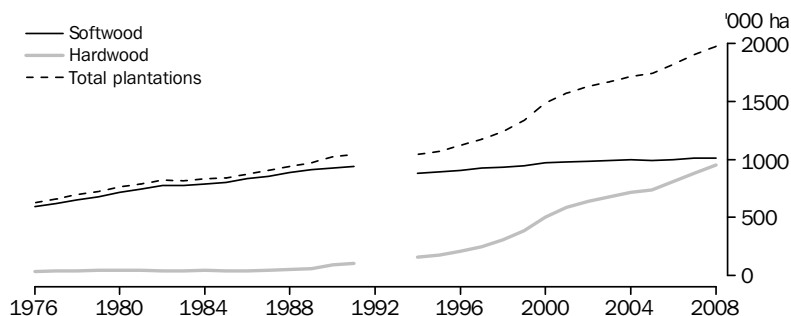
### 17.2 PLANTATION AREAS – 2008

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total
Species type	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha
Hardwood	82	201	59	58	305	217	27	—	950
Softwood	286	220	189	123	109	77	2	8	1 014
Other (mixed or unknown)	3	1	2	—	2	—	—	—	9
<b>Total</b>	<b>370</b>	<b>422</b>	<b>251</b>	<b>182</b>	<b>416</b>	<b>294</b>	<b>30</b>	<b>8</b>	<b>1 973</b>

— nil or rounded to zero (including null cells)

Source: Australia's Plantations 2009 Inventory update, National Forest Inventory, Bureau of Rural Sciences.

### 17.3 PLANTATION AREA(a), By species group



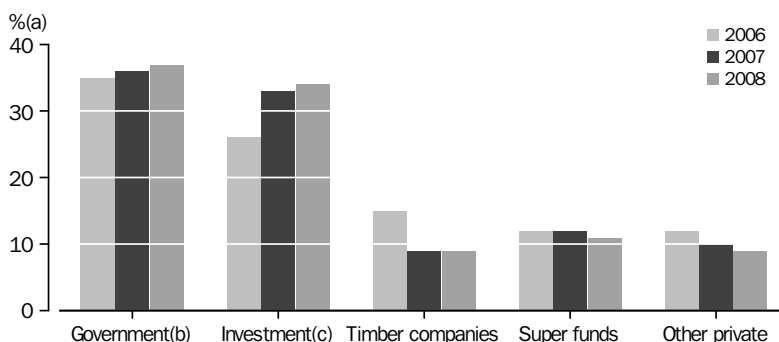
(a) Break in the series is due to use of different sources and their collection methods.

Source: Australian Bureau of Agricultural and Resource Economics (1976 to 1991); National Plantation Inventory, Bureau of Rural Sciences (since 1994).

introduced pines. Nearly all of the hardwood plantations are native eucalypts, including Tasmanian blue gum (*Eucalyptus globulus*), shining gum (*E. nitens*) and flooded gum (*E. grandis*).

For the first hundred years of plantation development in Australia most of the investment was by governments. There are now diverse ownership arrangements, including a variety of joint venture schemes between public and private parties. For the past several years, most investment in new plantations has been by the

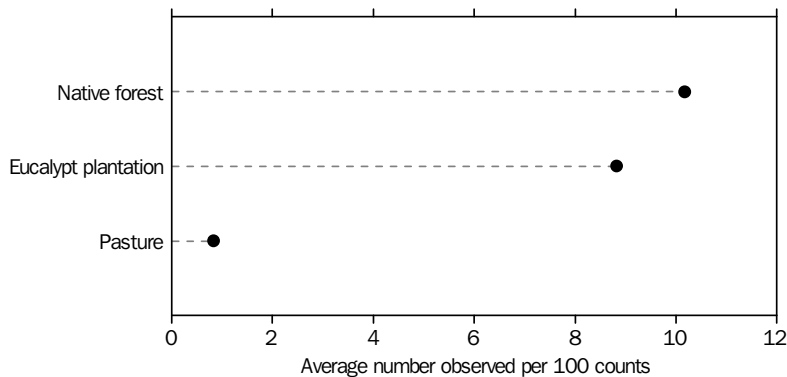
### 17.4 PLANTATION OWNERSHIP – 2006 TO 2008



(a) Proportion of total plantations. (b) Includes joint ventures. (c) Managed investment schemes.

Source: National Plantation Inventory, Bureau of Rural Sciences.

### 17.5 BIRD SPECIES IN FORESTS, PLANTATIONS AND PASTURES



Source: Arthur Rylah Institute for Environmental Research, DSE Vic.

private sector through managed investment schemes which funded about 81% of all new plantations established in the past five years and now own about 34% of the total plantation area (graph 17.4). The proportions of public and private plantations were equal at 46% in 1999. Privately-owned plantations now represent 62%, far exceeding public plantations at 33%. The other 5% are jointly owned.

#### Biodiversity in plantations

Until the 1980s, most plantations were pines planted on land where there was previously native forest. Since the 1980s, nearly all plantation expansion has been of eucalypts and the vast majority has been established on land cleared long before for agriculture. Biodiversity could be compared with the original native vegetation or with the former agricultural land use.

A growing number of studies indicates that biodiversity is highest in undisturbed native vegetation, next highest on plantation margins adjacent to native forest, and less in the interior of the plantation. Overall, plantations have a greater biodiversity than open agricultural and grazing land. The trend is the same for pine plantations but the level of biodiversity in the interior of the pines is normally less than in the interior of eucalypt plantations. Results of surveys comparing bird species found in native forest, eucalypt plantations and pasture in Victoria are shown in graph 17.5. Eucalypt plantations were examined at 105 sites in north-east and central-west Victoria, along with nearby sites in farmland and remnant forest. The study showed

that plantations support higher densities of forest birds than cleared farmland, and slightly lower densities than native forest.

#### Farm forestry

Farm forestry refers to the incorporation of commercial tree growing into farming systems. This may take the form of small plantations, timber belts, wind breaks, alleys and wide-spaced trees, and may also include management of native forest for commercial returns and other benefits. Farm forestry has been adopted by relatively few Australian farmers, although a large proportion of them plant trees for land protection and amenity purposes.

Managing private native forests is a potentially important component of farm forestry because 26% of Australia's total native forest area is on privately-owned land and a further 44% is on leasehold land. However, there is little information available about how those forests are managed.

#### Wood and paper products

On average, each Australian consumes about 1 cubic metre of timber products each year, including timber for home building, joinery, furniture and paper products. Those products are supplied from domestic production and from imports.

A total of 28.5 million cubic metres of logs were harvested from Australian native forests and plantations in 2007–08; that volume was 5% more



## 17.6 PRODUCTION OF WOOD AND SELECTED WOOD PRODUCTS

<i>Commodity</i>		2003-04	2004-05	2005-06	2006-07	2007-08
Sawn Australian-grown timber						
Coniferous	'000 m3	3 415	3 456	3 821	4 012	4 263
Broadleaved	'000 m3	1 253	1 231	1 211	1 152	1 109
Total	'000 m3	4 668	4 687	5 032	5 163	5 371
Plywood	'000 m3	146	156	145	130	134
Particle board	'000 m3	1 048	944	1 002	933	957
Medium-density fibreboard	'000 m3	795	794	798	680	710
Paper and paperboard						
Newsprint	'000 t	422	443	415	411	456
Printing and writing	'000 t	585	659	663	693	706
Household and sanitary	'000 t	200	197	203	190	186
Packaging and industrial	'000 t	1 956	1 945	1 926	1 907	1 933

Source: Australian Forest and Wood Products Statistics September and December quarters 2008, Australian Bureau of Agricultural and Resource Economics.

than the previous year and a 35% increase over ten years. The volume harvested from native forests declined by a little over 10% over ten years while the volume harvested from plantations increased by about 75%.

The total value of exports of forest products in 2007-08 was \$2.5 billion. Woodchips comprised 43% of that total and paper and paperboard products (primarily packaging and industrial paper) comprised 26%. The value of imports of forest products in 2007-08 was \$4.4 billion, of which 51% were paper and paperboard products (primarily printing and writing paper) and 11% sawnwood. This indicates a trade deficit in forest products of \$1.9 billion in 2007-08, similar to that in previous years.

Australia produced 5.4 million cubic metres of sawn timber in 2007-08 (table 17.6). That volume was comprised of 1.1 million cubic metres of hardwood timber, nearly all derived from logs harvested from native forests, and 4.3 million cubic metres of softwood timber, nearly all derived from logs harvested from plantations. Exports of sawnwood totalled 338 000 cubic metres and imports totalled 784,000 cubic metres. Allowing for domestic production, exports and imports, total Australian consumption of sawnwood in 2007-08 was about 5.8 million cubic metres.

Other timber products include plywood, wood-based panels and reconstituted wood panels. Australian-made wood-based panels include particleboard, medium-density fibreboard and hardboard. These are made from softwood or

hardwood pulplugs, sawmill residues and thinnings.

Pulp and paper mills use roundwood thinnings, low-quality logs, harvesting residues and sawmill waste, recycled paper and paperboard to produce a broad range of pulp and paper products. Over the past five years there has been an almost three fold increase in the volume of wood for paper and paperboard harvested from eucalypt plantations as they have come into production while the volume harvested from native forests has declined by about 13%.

Woodchips are used to produce paper and paper products. The woodchip export industry uses sawmill residues and native forest logs that are unsuitable for sawmilling. Before the advent of the woodchip export industry, much of this material was left in the forest after logging. Sawmill waste material, which would otherwise be burnt, is also chipped for local pulpwood-using industries. Woodchips are also produced from thinnings from softwood plantations and from hardwood plantations grown especially for the purpose.

A total of about 10.8 million cubic metres of logs were used for woodchip production for export in 2007-08, an increase of over 30% in the previous five years. The proportion from hardwood plantations increased from 14% to 38% of the total in that period while the proportion from native forests decreased from 72% to 48%.

## Fishing

### Production, processing, exports and imports of fisheries products

#### Production and value of fisheries

Australia's major commercial fishery products are rock lobster, prawns, tuna, abalone and pearls. Australian fishing operators concentrate their efforts on estuarine and coastal species, and pelagic (water column-living) and demersal (bottom-living) species that occur on the continental shelf.

Table 17.7 shows the quantity of production (including aquaculture) and table 17.8 the gross value of production of the Australian commercial fishing industry in 2007–08. In quantity terms, Australian fisheries production declined by 3% during 2007–08 to 235,681 tonnes with finfish (other than tuna), prawns, tuna and rock lobster the major contributors to the total. Consistent with the production trend, the gross value of the

catch fell 1% to \$2.2b due mainly to falls in the value of lobster (–\$36m), abalone (–\$29m) and pearls (–\$9m).

Table 17.9 shows the quantity produced and gross value of fishery production in the years 2005–06 to 2007–08.

Australian fisheries production covers total production from both Commonwealth and state-managed fisheries, including aquaculture. Commonwealth fisheries accounted for 13% of the total gross value of Australian fisheries production in 2007–08. Commonwealth fisheries are those managed by the Australian Fisheries Management Authority on behalf of the Australian Government. State and Northern Territory governments manage inland fisheries and aquaculture, in addition to those salt water fisheries not managed by the Australian (Commonwealth) Government, as described in Offshore Constitutional Settlement Arrangements.

#### 17.7 FISHERIES PRODUCTION, Quantity(a)—2007–08

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Cwlth	Aust.
	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
<b>Finfish</b>									
Tuna	—	—	—	9 757	33	—	10	10 072	14 651(b)
Other	12 333	4 948	14 099	35 646	10 517	25 385	5 523	32 815(c)	141 267
Total	12 333	4 948	14 099	45 403	10 550	25 385	5 533	42 887	155 918
<b>Crustaceans</b>									
Prawns	1 810	34	7 829	2 316	2 572	—	—	7 868(d)	22 430
Rock lobster	122	356	302	2 309	8 961	1 444	—	339	13 833
Crab	311	26	3 194	732	1 072	60	369	5	5 769
Other	47	21	523	40	130	na	—	101	862
Total	2 290	437	11 848	5 397	12 735	1 504	369	8 314	42 894
<b>Molluscs</b>									
Abalone	109	1 385	—	1 057	281	2 487	—	—	5 319
Scallops	—	907	2 952	—	4 951	1 461	—	9	10 280
Oysters(e)	4 500	—	na	5 448	np	2 512	—	—	12 460
Other	494	640	59	2 756	757	1 077	35	1 013	6 831
Total	5 103	2 932	3 011	9 260	5 989	7 537	35	1 023	34 890
Other fisheries production	68	—	120	1 727	27	34	na	4	1 980
<b>Total</b>	<b>19 794</b>	<b>8 317</b>	<b>29 079</b>	<b>61 788</b>	<b>29 301</b>	<b>34 460</b>	<b>5 937</b>	<b>52 227(f)</b>	<b>235 681(b)</b>

- nil or rounded to zero (including null cells)  
na not available  
np not available for publication but included in totals where applicable, unless otherwise indicated  
(a) Includes estimates of aquaculture production (except NT), but excludes hatchery and inland commercial fishery production.  
(b) Total has been adjusted so as not to double-count some southern bluefin tuna caught in the Commonwealth Southern Bluefin Tuna Fishery which was used as input to aquaculture in SA.

- (c) Includes the finfish component of Commonwealth Fisheries, plus catch from Commonwealth Fisheries that cannot be disaggregated due to confidentiality.  
(d) Includes the Northern prawn, Torres Strait, South East and other fisheries.  
(e) Excludes pearl oyster production (which only occurs in Qld, WA and NT).  
(f) Totals include all fisheries under federal jurisdiction.  
Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Fisheries Statistics - September and December Quarters 2008'.

### 17.8 FISHERIES PRODUCTION, Gross value(a)—2007–08

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Cwth	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Finfish</b>									
Tuna	—	—	—	186 742	233	—	19	67 232	210 055(b)
Other	48 550	23 073	112 788	56 232	38 026	294 615	26 093	124 374(c)	723 752
<b>Total</b>	<b>48 550</b>	<b>23 073</b>	<b>112 788</b>	<b>242 974</b>	<b>38 259</b>	<b>294 615</b>	<b>26 112</b>	<b>191 606</b>	<b>933 807</b>
<b>Crustaceans</b>									
Prawns	22 261	239	98 499	35 874	26 983	—	—	83 685(d)	267 541
Rock lobster	5 582	13 863	11 089	91 666	216 926	58 161	—	9 428	406 715
Crab	4 528	724	27 774	6 007	6 442	1 889	6 503	74	53 941
Other	818	130	10 489	785	2 773	2	—	1 532	16 529
<b>Total</b>	<b>33 189</b>	<b>14 956</b>	<b>147 850</b>	<b>134 332</b>	<b>253 124</b>	<b>60 051</b>	<b>6 503</b>	<b>94 720</b>	<b>744 725</b>
<b>Molluscs</b>									
Abalone	3 667	43 949	—	36 194	10 165	94 567	—	—	188 542
Scallops	—	1 881	10 371	—	17 824	2 600	—	55	32 730
Oysters	39 000	—	620	30 132	np	19 378	—	—	89 130
Pearls	—	—	1 292	—	113 000	—	na	—	114 292
Other	3 964	2 366	297	9 698	14 758	4 189	333	2 061	37 666
<b>Total</b>	<b>46 631</b>	<b>48 196</b>	<b>12 580</b>	<b>76 024</b>	<b>155 747</b>	<b>120 734</b>	<b>333</b>	<b>2 115</b>	<b>462 360</b>
Other fisheries production	1 855	—	5 421	14 765	1 269	66	22 570	11	45 957
<b>Total</b>	<b>130 225</b>	<b>86 225</b>	<b>278 639</b>	<b>468 095</b>	<b>448 399</b>	<b>475 467</b>	<b>55 518</b>	<b>288 454(e)</b>	<b>2 186 849(b)</b>

— nil or rounded to zero (including null cells)

na not available

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes estimates of the value of aquaculture production, but excludes the value of hatchery and inland commercial fishery production.

(b) Total has been adjusted so as not to double-count the value of some southern bluefin tuna caught in the Commonwealth Southern Bluefin Tuna Fishery which was used as input to aquaculture in SA.

(c) Includes the finfish component of Commonwealth Fisheries, plus catch from Commonwealth Fisheries that cannot be disaggregated due to confidentiality.

(d) Includes the value of Northern prawn, Torres Strait, South East and other fisheries.

(e) Totals include all fisheries under federal jurisdiction.

Source: Australian Bureau of Agricultural and Resource Economics, Australian Fisheries Statistics - September and December Quarters 2008.

### Processing of fish, crustaceans and molluscs

Processing establishments vary in size, scope of operations and sophistication of technologies employed. The majority of establishments undertake relatively basic cleaning, filleting, chilling, freezing and packaging processes, although some have the capacity for significant product transformation. Much of the value that is added to the catch is due to correct handling and quick delivery by air to local or overseas markets. Processing aims to maintain quality and freshness of export product by superior handling, cold storage and rapid transport to markets. This quality aspect is important in generating high values.

### Exports and imports

Exports of fisheries products come under Australian government jurisdiction, while domestic market activity is the responsibility of the states and territories.

A significant proportion of Australian fisheries production – edible and non-edible – is exported. In 2007–08 the total value of exports (including live fish) fell by 10% to \$1.3b (table 17.10) as Australia lost its status as a net exporter of fisheries products. Rock lobster was the highest earning export, accounting for 30% of total value of exports of fisheries products. Although the value of abalone exports fell 12% they remained as the second most valuable single edible fisheries export product while exports of tuna (whole) jumped 26% to be the third most valuable edible fisheries export. Exports of the highest value non-edible earner, pearls, slipped back 16% to \$264m in 2007–08. (For some fisheries categories, the value of exports exceeds the value of production because exports are valued on a free-on-board basis which includes the value of packaging and distribution services to the point of export.)

In 2007–08, Hong Kong continued as the major destination for Australian exports of fisheries

### 17.9 SELECTED FISHERY PRODUCTS(a), Quantity and gross value

	2005-06		2006-07		2007-08	
	'000 t	\$m	'000 t	\$m	'000 t	\$m
Finfish						
Tuna	12.7	175.1	13.1	161.0	14.7	210.0
Other	149.5	614.6	147.0	706.9	141.3	723.8
Total	162.2	789.7	160.1	868.0	155.9	933.8
Crustaceans						
Prawns	23.6	304.8	20.8	267.4	22.4	267.5
Rock lobster	16.2	476.8	13.5	442.8	13.8	406.7
Crab	6.1	52.7	6.0	54.2	5.8	53.9
Other	0.6	7.7	1.1	20.4	0.9	16.5
Total	46.5	841.9	41.4	784.8	42.9	744.7
Molluscs						
Abalone	5.5	225.1	5.5	217.0	5.3	188.5
Scallops	9.0	23.3	10.6	29.3	10.3	32.7
Oysters	12.1	75.3	14.4	91.1	12.5	89.1
Pearls(b)	—	122.0	—	123.7	—	114.3
Other	8.6	39.8	9.4	44.0	6.8	37.7
Total	35.2	485.4	39.8	505.1	34.9	462.4
Other fisheries production(c)	2.3	49.4	2.3	52.9	2.0	46.0
<b>Total</b>	<b>246.2</b>	<b>2 166.4</b>	<b>243.6</b>	<b>2 210.8</b>	<b>235.7</b>	<b>2 186.8</b>

— nil or rounded to zero (including null cells)

(a) Includes estimates for aquaculture; excludes hatchery and inland commercial fisheries.

(b) Excludes the value of pearls in NT.

(c) Includes the value of pearls in NT.

Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Fisheries Statistics—September and December Quarters 2008'.

### 17.10 EXPORTS AND IMPORTS OF FISHERIES PRODUCTS(a)

	2005-06		2006-07		2007-08	
	Exports	Imports	Exports	Imports	Exports	Imports
	\$m	\$m	\$m	\$m	\$m	\$m
Fish	294.8	602.1	280.4	701.1	324.8	715.0
Tuna (whole)	177.4	1.6	160.4	1.1	202.3	1.6
Other fish (including canned and fillets)	117.3	600.5	120.0	699.9	122.5	713.4
Prawns	133.9	201.4	93.6	246.4	68.6	166.6
Lobster	489.4	10.2	463.4	13.2	400.9	14.1
Abalone	245.6	—	246.0	—	217.2	—
Scallops	38.8	30.8	35.4	29.8	27.8	28.1
Pearls(b)	289.5	159.4	313.7	181.6	264.0	166.4
Other fisheries products	55.0	261.9	61.6	295.3	38.3	307.7
<b>Total</b>	<b>1 547.0</b>	<b>1 265.7</b>	<b>1 494.0</b>	<b>1 467.4</b>	<b>1 341.7</b>	<b>1 397.9</b>

— nil or rounded to zero (including null cells)

(a) Includes non-edible products (e.g. marine fats and oils, fishmeals, pearls and ornamental fish). Exports exclude sea products landed abroad directly from the high seas.

(b) Export data include items temporarily exported.

Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Fisheries Statistics - September and December Quarters 2008'.

products, taking \$554m worth of product (excluding live) and accounting for 43% of the total value of Australian fisheries exports (excluding live). Japan – the number two destination – accounted for 29%, with the products valued at \$382m. The United States of America and Taiwan followed with \$96m and \$45m respectively while exports to China lost further ground, now only taking one quarter of their 2005–06 shipment.

South Australia was the highest earning state from exports of seafood in 2007–08, with income of \$339m accounting for 32% of the total value of Australia's seafood exports. South Australia earned \$194m (57%) of this income from exporting fresh or frozen fish while Western Australia earned 85% of its seafood export income of \$266m from rock lobster. Live fish earned Queensland 25% of its total seafood export income of \$161m. Tasmania (\$147m) and Victoria (\$102m) each earned about two-thirds of their seafood export income from sales of abalone.

The total value of Australian imports of fisheries products in 2007–08 fell 5% to \$1.4b (table 17.9). The major items of imports, in value terms, were fish (\$715m) – a third 'canned' and nearly another third frozen fillets – prawns (\$167m) and pearls (\$166m). The two main source countries of imported fisheries products were Thailand (\$297m) and New Zealand (\$207m) which together accounted for 36% of the value of imports. Fisheries products from Vietnam (\$142m) and China (\$133m) continued to make a strong contribution, combining to account for one fifth of imports of fisheries products.

## Fisheries resources

The *Australian Fishing Zone* (AFZ) covers offshore waters between 3 to 200 nautical miles seaward of the territorial sea baseline of Australia and its external territories. This area of almost 9 million square kilometres makes it an expanse 16% larger than the Australian land mass and the third largest fishing zone in the world. Despite the size of the AFZ, the Australian fisheries catch is small by world standards, as the waters of the AFZ tend to be nutrient poor, and so are generally not highly productive.

The *Fisbery Status Reports 2008*, produced by the Bureau of Rural Sciences (BRS) and the Australian Bureau of Agricultural and Resource Economics, provides stock assessment information for 98

stocks, species or groups of species (hereafter all referred to as 'stocks'), in fisheries for which the Australian Government has management responsibility. Management of these fisheries may be implemented unilaterally, with day-to-day management by the Australian Fisheries Management Authority (AFMA) or through joint authorities with state or territory governments, bilateral international agreements or broader regional or global international management entities.

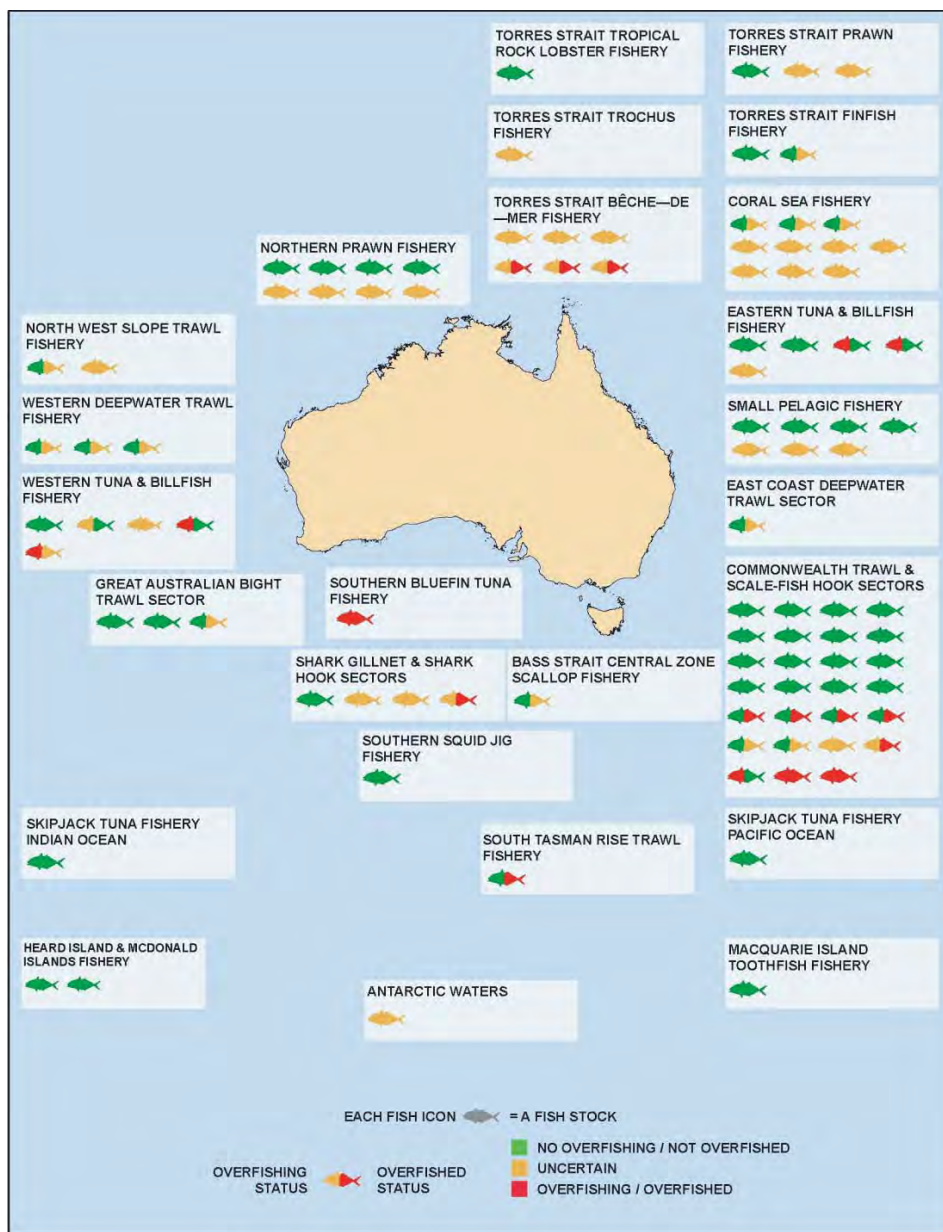
The *Fisbery Status Reports* describe, among other things, whether or not stocks are overfished (that is, their stock biomass is below a prescribed level) or subject to overfishing (the rate of mortality due to fishing exceeds a prescribed level). Of the 98 stocks assessed in the 2008 status reports, 44 were classified as not overfished (up from 20 in 2004), 13 as overfished (compared to 14 in 2004), and the status of the remaining 41 species was uncertain (compared to 40 in 2004). In terms of overfishing, 57 were not overfished (up from 12 in 2004), eight were subject to overfishing (compared to nine in 2004) and the status of 33 was uncertain (down from 53 in 2004). Of the 98 assessed stocks, 39 were classified as being both 'not overfished' and 'not subject to overfishing', while three stocks were classified as both overfished and subject to overfishing.

In 2008–09, the BRS, in collaboration with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), commenced a three year 'Reducing Uncertainty in Stock Status' project, designed to have a long-term impact in reducing the number of stocks classified as uncertain. In the *Fisbery Status Reports* 'uncertain' species are those for which it is unclear whether they are overfished (too few fish left in a stock) or not, or whether overfishing (the stock is experiencing too much fishing) is occurring or not. In the long term, this project will facilitate the classification of stocks for which there are limited data to support a formal stock assessment.

Map 17.11 shows the status of 98 fish species (or groups of species) in Australia's Commonwealth-managed or jointly-managed fisheries in 2008.

Despite Australia's international reputation for its well-managed fisheries, these resources must be managed carefully to avoid over-exploitation. Status reports from 1992 to 2005 showed a trend of continued overfishing, increasing numbers of

17.11 STATUS OF COMMONWEALTH-MANAGED OR JOINTLY-MANAGED FISHERIES RESOURCES—2008



Source: Bureau of Rural Sciences, Australian Bureau of Agricultural and Resource Economics Fishery Status Report 2008.

overfished stocks and continued high levels of uncertainty regarding stock status.

In response, a number of changes have been implemented since 2005, which have seen this trend reversed. The effects of these measures and the structural adjustments will become apparent over a number of years, with some stocks quicker to recover than others. Already, progress has been documented in the *Fisbery Status Reports 2008*, with fewer stocks subject to overfishing.

The *Commonwealth Harvest Strategy Policy* (HSP) provides a framework for assessing the available information on individual fish stocks and applying an evidence-based, precautionary approach to setting catch levels on a stock basis. The HSP is designed to maximise the net economic return from the harvest of Commonwealth-managed fish stocks, whilst maintaining stocks at sustainable and productive levels. The HSP reflects the key domestic and policy obligations for Commonwealth fisheries management of key commercial species.

In December 2005, AFMA under its legislation was directed by the Minister for Fisheries, Forestry and Conservation to minimise the incentives for discarding by ensuring it is factored into the setting of total allowable catch or effort levels (this is implemented by reducing the global Total Allowable Catch for quota species by the estimated amount of discards). AFMA was also directed to enhance the monitoring of fishing activity, for example through increased use of vessel monitoring systems with daily reporting, the use of on-board cameras and independent observers, and to establish a system of independent surveys for all major Commonwealth fisheries to increase transparency of catch and effort information.

## Aquaculture

Aquaculture is a rapidly growing primary industry in Australia, and is an alternative to harvesting the naturally occurring wild fish stocks of aquatic organisms, such as fish, molluscs, crustaceans and aquatic plants. Aquaculture operations may involve the farming of captive-bred stock or the 'grow-out' of 'naturally occurring' larvae and juveniles and wild caught stocks, but in all cases involves intervention in the rearing process designed to enhance production, such as regular stocking, feeding and protection from predators. Unlike wild-caught fisheries in which fishers

access and harvest a common resource, farming implies individual or corporate ownership of the stock being cultivated, which provides operators with greater control over their operations. In 2007–08 the gross value of production of Australian aquaculture increased by 8% to \$868.4m or 40% of the total value of fisheries production.

Aquaculture commenced in Australia in the late-1800s with the successful introduction of trout from the northern hemisphere and cultivation of the native Sydney rock oyster. The industry remained centred on these two species until the 1950s when the first cultured pearl farm was established in north-western Australia. A new wave of aquaculture development began in the 1980s with the beginning of the Atlantic salmon industry in Tasmania and commercial cultivation of native freshwater finfish, freshwater crayfish, prawns and Pacific oysters. The value of aquaculture production increased significantly in the 1990s, based on increased production and processing of Pacific oysters, prawns, Atlantic salmon, pearls and southern bluefin tuna.

Aquacultural operations occur in diverse environments including tropical, subtropical and temperate regions. The location of aquaculture is dependent on seasonal factors, the type of species being cultivated, the life-cycle stage of aquatic organisms and proximity to marine parks. More than one-third of people employed in the fishing industry are employed in aquaculture, which provides development opportunities in regional Australia and contributes to export income.

Many types of systems employing a variety of management techniques are used in aquaculture. The main emphasis of the industry is on producing high value species in near-shore or land-based sites within the coastal zone. Systems can be open or closed depending on the water flow. Open systems allow water to move through the cages such as in open seas or flowing rivers. In closed systems, the water flow is contained as in a pond or an aquarium.

In 2007–08 the gross value of Australian aquaculture production increased 8% (table 17.12). Salmon (\$299m) continued as the species contributing the most to total gross value with tuna (\$187m) production ranking second. Pearl oysters and edible oysters followed with \$114m and \$89m respectively.

### 17.12 AQUACULTURE PRODUCTION, Quantity and gross value(a)

	2005-06		2006-07		2007-08	
	tonnes	\$m	tonnes	\$m	tonnes	\$m
<b>Finfish</b>						
Salmon(b)	20 976.0	231.5	25 603.0	290.7	25 527.0	299.3
Tuna	8 806.0	155.8	7 486.0	137.7	9 757.0	186.7
Other(c)	2 936.0	28.2	3 284.0	34.3	5 892.0	60.3
Total	32 717.0	415.5	36 373.0	462.7	41 175.0	546.3
<b>Crustaceans</b>						
Prawns	3 541.0	49.7	3 284.0	45.1	3 088.0	44.2
Yabbies	91.0	1.3	110.0	1.7	84.0	1.4
Other(d)	169.0	2.9	189.0	3.7	148.0	3.3
Total	3 802.0	54.0	3 583.0	50.5	3 319.0	48.8
<b>Molluscs</b>						
Pearl oysters(e)	na	122.0	na	123.7	na	114.3
Edible oysters	12 052.0	75.3	14 374.0	91.1	12 460.0	89.1
Other(f)	3 695.0	26.5	3 676.0	26.1	3 657.0	25.2
Total	15 747.0	223.8	18 050.0	240.9	16 116.0	228.6
Other fisheries production(g)	2 273.0	49.1	2 137.0	51.6	1 892.0	44.6
<b>Total</b>	<b>54 539.0</b>	<b>742.3</b>	<b>60 142.0</b>	<b>805.7</b>	<b>62 503.0</b>	<b>868.4</b>

na not available

(a) Excludes hatcheries production, crocodiles, microalgae and aquarium worms.

(b) Includes trout production.

(c) Includes silver perch, barramundi, eels, aquarium fish and other native fish.

(d) Includes marron and redclaw.

(e) Excludes value of NT pearl production which remains confidential.

(f) Includes mussels, scallops, giant clams and abalone.

(g) Includes production of species unable to be assigned to a specific category, and value of NT pearls.

Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Fisheries Statistics - September and December Quarters 2008'.

In quantity terms, Australian aquacultural production for 2007-08 increased 4%. As in previous years, salmon, with 25,527 tonnes,

remained the major aquaculture product, while edible oyster (12,460 tonnes) was the second most plentiful product.



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# Biodiversity and the Australian fishing sector

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## Biodiversity and the Australian fishing sector

Australia's fisheries are managed in ways that take account of the effects of fishing techniques and practices on the marine environment as a whole. A number of policies which take into consideration the effect of fishing practices on marine ecosystems are in place.

### Ecosystem-Based Fisheries Management

Ecosystem-Based Fisheries Management (EBFM) considers the impact of fisheries on the marine environment as a whole, not just the target species. This includes bycatch and byproduct species (including protected species), habitats and communities.

### Bycatch Action Plans

All Commonwealth-managed fisheries have Bycatch Action Plans for Bycatch and Discard Workplans in place. These aim to identify bycatch issues in a fishery and actions to address those issues. These plans are developed based on the outcomes of Ecological Risk Assessments.

There are other methods by which bycatch and discards are managed, such as the use of

bycatch reduction devices, practices such as night setting, limits on permit conditions and the use of spatial and temporal closure of fisheries where bycatch exceeds specified targets.

### Fisheries Assessments

Commonwealth fisheries and state export fisheries are assessed by the Department of Environment, Water, Heritage and the Arts under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) for environmental performance and to promote ecologically sustainable management.

These assessments are also used to determine whether a fishery should be approved as a wildlife trade operation (WTO), which allows commercial export of fisheries product. The WTO approval takes into account interactions with protected species.

### Marine Bioregional Planning

Marine Bioregional Plans are developed under the EPBC Act and focus primarily on Commonwealth waters. They provide information, management goals and tools for Commonwealth marine areas and are designed to provide a clearer focus on conservation and sustainable management of Australia's marine environment.



## MINING

Mining broadly relates to the extraction of minerals occurring naturally as solids such as coal and ores, liquids such as crude petroleum, or gases such as natural gas. Activities carried out at or near mine sites as an integral part of mining operations, such as dressing or beneficiation of ores or other minerals, are included. Natural gas absorption and purifying plants are also included. However, the first stage processing of minerals and mineral extracts, while closely related to the mining industry, is included as part of the manufacturing industry.

Australia continues to rank as one of the world's leading mining nations with substantial identified resources of major minerals and fuel close to the surface. In 2007 it had the world's largest economic demonstrated resources of brown coal, mineral sands (rutile and zircon), nickel, uranium, lead and zinc.

Australia was the largest producer of bauxite, mineral sands (ilmenite, rutile and zircon) and tantalum in 2007. It was also one of the largest producers of uranium, iron ore, lead, zinc and nickel.

The contribution of the mining industry to Australia's gross domestic product (GDP) in 2007–08 was 8%.

Expenditure on mineral exploration in 2008–09 was 116 per cent higher than in 2004–05. During the same period the value of exports from the mining industry increased almost threefold and the industry's contribution to total goods exported from Australia in 2008–09 was 51.4 per cent of the total value of exports.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Mineral, oil and gas resources

The statistics of available mineral resources provided in table 18.1 are obtained from *Australia's Identified Mineral Resources* produced by Geoscience Australia. They provide an indication of the extent of mineral resources available for extraction, with the main focus being on economic demonstrated resources (EDR).

EDR is a measure of the resources that are established, analytically demonstrated or

assumed with reasonable certainty to be profitable for extraction or production under defined investment assumptions. Classifying a mineral resource as EDR reflects a high degree of certainty as to the size and quality of the resource and its economic viability.

Table 18.1 shows the importance of the main mineral resources in Australia for the year ended December 2008.

### 18.1 ECONOMIC DEMONSTRATED RESOURCES OF MAJOR MINERALS—DECEMBER 2008

<i>Mineral</i>		<i>Australia</i>	<i>World</i>	<i>Australia's percentage of world EDR</i>	<i>Australia's ranking in world holdings of EDR –2007</i>
Bauxite	Gt	6	27	23	2nd
Black coal					
In situ	Gt	56	na	na	na
Recoverable	Gt	39	681(a)	6	6th
Brown coal					
In situ	Gt	44	na	na	na
Recoverable	Gt	37	147(a)	25	1st
Copper(b)	Mt Cu	78	603	13	2nd
Diamond					
Gem and near gem(c)	Mc	92	na	na	na
Industrial	Mc	96	586	16	3rd
Gold(b)	t Au	6 255	4 865	na	2nd
Iron ore	Gt	24	158	15	4th
Lead(b)	Mt Pb	27	82	33	1st
Lithium(b)	kt Li	584	4 514	13	n.a.
Manganese ore	Mt	181	1 370	13	4th
Mineral sands					
Ilmenite	Mt	212	1 266	17	2nd
Rutile	Mt	23	46	50	1st
Zircon	Mt	39	87	45	1st
Nickel(b)	Mt Ni	26	70	38	1st
Silver(b)	kt Ag	61	302	20	2nd
Tantalum(b)	kt Ta	42	130	32	2nd
Uranium(b)(d)	kt U	1 163	3 047(e)	38	1st
Zinc(b)	Mt Zn	53	193	28	1st

na not available

(a) Geoscience Australia estimate.

(b) Quantity measured in contained metal.

(c) Detailed data are not available on world resources of gem/near gem diamond but Australia has one of the largest stocks for this category.

(d) Refer to Australia's Identified Mineral Resources 2008 for comparison of resource categories in the national scheme with those of the international scheme for classifying uranium resources.

(e) Source: OECD Nuclear Energy Agency & International Atomic Energy Agency (OECD/NEA & IAEA) (2007). Compiled from the most recent data for resources recoverable at <US\$80 per kilogram of uranium. Data for the United States of America is not available for this category.

Note: See table 19.2 in the Energy Chapter of this edition of Year Book Australia for more recent Australian data.

Source: Geoscience Australia, 'Australia's Identified Mineral Resources'.

## 18.2 ECONOMIC DEMONSTRATED RESOURCES OF SELECTED MINERALS

Mineral		AUSTRALIA			WORLD		
		2007	2008	% change	2007	2008	% change
Bauxite	Gt	6.2	6.2	—	25.0	27.0	8.0
Coal, black(a)	Gt	38.9	39.2	0.8	687.0	681.0(b)	-0.9
Coal, brown(a)	Gt	37.3	37.2	-0.3	148.0	147.0(b)	-0.7
Copper(c)	Mt Cu	59.4	77.8	31.0	525.0	603.0	14.9
Diamond(d)	Mc	101.3	95.7	-5.5	590.0	586.0	-0.7
Gold(c)	t Au	5 839.0	6 255.0	7.1	42 000.0	48 655.0	15.8
Iron ore	Gt	20.3	24.0	18.2	154.0	158.0	2.6
Lead(c)	Mt Pb	23.3	26.8	15.0	78.0	82.0	5.1
Lithium(c)	kt Li	169.0	584.0	245.6	4 269.0	4 514.0	5.7
Manganese ore	Mt	164.0	181.0	10.4	1 300.0	1 370.0	5.4
Mineral sands(e)	Mt	283.5	274.3	-3.2	1 405.0	1 399.0	-0.4
Nickel(c)	Mt Ni	25.8	26.4	2.3	68.7	69.9	1.7
Silver(c)	kt Ag	50.1	61.4	22.6	289.0	302.0	4.5
Tantalum(c)	kt Ta	41.0	42.0	2.4	130.0	130.0	—
Uranium(c)(f)	kt U	983.0	1 163.0	18.3	2 867.0	3 047.0	6.3
Zinc(c)	Mt Zn	42.5	53.1	24.9	179.0	193.0	7.8

— nil or rounded to zero (including null cells)

(a) Recoverable coal.

(b) Geoscience Australia estimate.

(c) Quantity measured in contained metal.

(d) Industrial diamond only. Data are not available on world resources of gem/near gem diamonds but Australia has stocks amongst the largest for this category.

(e) Includes ilmenite, rutile and zircon.

(f) Source: OECD Nuclear Energy Agency & International Atomic Energy Agency (OECD/NEA & IAEA) (2007). Compiled from the most recent data for resources recoverable at <US\$80/kilogram of uranium.

Note: See table 19.2 in the Energy Chapter of this edition of Year Book Australia for more recent Australian data

Source: Geoscience Australia, 'Australia's Identified Mineral Resources'.

In terms of Australia's ranking in world holdings of EDR, in 2007 Australia had the world's largest EDR of brown coal (recoverable), lead, rutile, zircon, nickel, uranium and zinc, and ranked second in the world for bauxite, copper, gold, lithium, ilmenite, silver and tantalum. In addition, Australia's EDR for industrial diamonds was ranked third and manganese ore was ranked fourth largest in the world.

For the year ended December 2008 the most significant increase in Australia's mineral EDR was recorded for lithium (246%) (table 18.2). The most significant factor for this increase in lithium EDR was drilling work at the Greenbushes mine in Western Australia which identified substantial additional resources.

The EDR of copper increased by 31%, resources of zinc and silver rose by 25% and 23% respectively, while the EDR of uranium and iron ore both increased by 18%. The EDR of industrial diamonds was down 6%, while mineral sands (comprising ilmenite, rutile and zircon) fell by 3%.

Australia's oil and gas resources encompass crude oil, condensate (a liquid mixture of pentane and heavier hydrocarbons that is recoverable from a gas well through a separation system), naturally occurring liquefied petroleum gas (LPG) and natural gas. EDR for oil and gas are resources which are judged to be economically extractable and for which the quantity and quality are computed partly from specific measurements, and partly from extrapolation for a reasonable distance on geological evidence. Subeconomic demonstrated resources (SDR) are similar to EDR in terms of certainty of occurrence but are considered to be potentially economic only in the foreseeable future.

The information presented in table 18.3 is obtained from the annual report *Oil and Gas Resources of Australia*, produced by Geoscience Australia. Between the start of 2005 and 2009, EDR for LPG reserves fell by 51 gigalitres or 23%. The EDR of Sales gas increased by 740 gigalitres or 31%, and condensate by 74 gigalitres or 28% over this period. Estimated crude oil reserves increased by 16 gigalitres or 9%. SDR decreased

### 18.3 OIL AND GAS RESOURCES—AS AT 1 JANUARY(a)

	CRUDE OIL		CONDENSATE		LPG		SALES GAS	
	million		million		million		billion	trillion
	gigalitres	barrels	gigalitres	barrels	gigalitres	barrels	cubic metres	cubic feet
<b>ECONOMIC DEMONSTRATED RESOURCES</b>								
2005	172	1 083	265	1 667	224	1 411	2 403	85
2006	171	1 078	258	1 624	214	1 348	2 434	86
2007	161	1 010	239	1 504	207	1 299	2 446	86
2008	162	1 020	230	1 447	192	1 206	2 365	84
2009	188	1 181	339	2 137	173	1 095	3 143	110
<b>SUBECONOMIC DEMONSTRATED RESOURCES</b>								
2005	69	433	117	735	78	490	1 567	55
2006	95	599	146	917	78	488	1 884	67
2007	95	595	150	945	78	489	2 084	74
2008	81	507	208	1 305	77	486	2 313	82
2009	39	249	97	614	60	379	1 504	53

(a) McKelvey classification estimates.

Source: Geoscience Australia, 'Oil and Gas Resources of Australia', 2005, 2006 and 2008 issues.

for all oil and gas resources between 2005 and 2009.

excludes activity of a developmental or production nature.

### Expenditure on mineral and petroleum exploration

Exploration involves the search for new ore occurrences or undiscovered oil or gas, and/or appraisal intended to delineate or greatly extend the limits of known deposits of minerals, oil or gas reservoirs by geological, geophysical, geochemical, drilling or other methods. This includes construction of shafts and adits (horizontal entrance passages leading into a mine), primarily for exploration purposes, but

Expenditure during the last five years on mineral exploration other than for petroleum and water is summarised in table 18.4.

Mineral exploration expenditure in 2008–09 was \$2,223 million (m). This was \$1,195m (116%) higher than in 2004–05 but \$238m (10%) lower than in 2007–08. Exploration expenditure in South Australia increased by \$154m (231%) in the period 2004–05 to 2008–09, the highest rate of increase for this period. Western Australia continued to account for the majority (59% in 2004–05 and 56% in 2008–09) of the exploration

### 18.4 MINERAL EXPLORATION EXPENDITURE, BY STATE AND TERRITORY

	Change from 2004–05 to 2008–09					
	2004–05	2005–06	2006–07	2007–08	2008–09	2008–09
	\$m	\$m	\$m	\$m	\$m	%
New South Wales	73.6	114.1	144.1	189.9	175.3	138.2
Victoria	51.5	74.2	82.5	93.7	62.2	20.8
Queensland	166.4	218.8	272.3	397.9	351.6	111.3
South Australia	66.8	146.5	260.8	355.2	220.8	230.5
Western Australia	606.0	590.2	839.2	1 259.7	1 246.8	105.7
Tasmania	8.3	22.6	23.9	32.5	20.3	144.6
Northern Territory	55.6	74.8	92.2	132.7	146.2	162.9
<b>Australia</b>	<b>1 028.3</b>	<b>1 240.7</b>	<b>1 714.6</b>	<b>2 461.4</b>	<b>2 223.2</b>	<b>116.2</b>

Source: Mineral and Petroleum Exploration, Australia (8412.0).

## 18.5 MINERAL EXPLORATION EXPENDITURE, BY MINERAL SOUGHT

	2004-05	2005-06	2006-07	2007-08	2008-09	Change from 2004-05 to 2008-09
	\$m	\$m	\$m	\$m	\$m	%
Selected base metals	261.1	356.6	555.0	783.4	519.0	98.8
Copper	71.4	139.5	234.5	293.5	178.7	150.3
Silver, lead, zinc	31.3	71.2	139.4	186.5	80.5	157.2
Nickel, cobalt	158.6	146.0	181.1	303.2	259.9	63.9
Gold	391.7	399.6	455.9	592.6	438.0	11.8
Iron ore	137.9	161.3	285.4	449.8	588.7	326.9
Mineral sands	27.6	29.2	37.3	37.0	30.6	10.9
Uranium	20.7	56.1	114.1	231.5	185.2	794.7
Coal	126.8	166.4	193.2	234.8	297.3	134.5
Diamonds	23.7	22.6	26.9	21.7	10.0	-57.8
Other(a)	38.6	49.1	46.9	110.3	154.1	299.2
<b>Total</b>	<b>1 028.4</b>	<b>1 240.7</b>	<b>1 714.6</b>	<b>2 461.4</b>	<b>2 223.2</b>	<b>116.2</b>

(a) Includes tin, tungsten, scheelite, wolfram and construction materials.

Source: Mineral and Petroleum Exploration, Australia (8412.0).

## 18.6 OIL AND GAS EXPLORATION EXPENDITURE

	2004-05	2005-06	2006-07	2007-08	2008-09	Change from 2004-05 to 2008-09
	\$m	\$m	\$m	\$m	\$m	%
Onshore	270.1	355.8	498.2	493.8	492.3	82.3
Offshore	774.6	906.1	1 727.3	2 541.1	3 318.4	328.4
<b>Total</b>	<b>1 044.7</b>	<b>1 261.9</b>	<b>2 225.5</b>	<b>3 034.9</b>	<b>3 810.7</b>	<b>264.8</b>

Source: Mineral and petroleum Exploration, Australia (8412.0).

expenditure over this period, followed by Queensland (16% in both periods).

Most of the expenditure in 2008-09 was related to exploration for iron ore (table 18.5), with iron ore exploration expenditure accounting for 26% of total mineral exploration expenditure. In percentage terms the greatest increases recorded for the period 2004-05 to 2008-09 were for uranium and iron ore exploration, increasing by 795% (\$165m) and 327% (\$451m) respectively. Significant increases were also recorded for silver, lead and zinc (157%), copper (150%) and coal (135%). Exploration expenditure for diamonds fell by 58% (\$14m) over this period.

In 2008-09, total mineral exploration expenditure was \$238m or 10% lower than in 2007-08, primarily due to falls in silver, lead and zinc

(57%), diamonds (54%), copper (39%) and gold (26%) exploration expenditure.

In the period 2004-05 to 2008-09, expenditure on oil and gas exploration rose by 265% (\$2,766m) (table 18.6) due to increases in both offshore and onshore exploration expenditure of 328% (\$2,544m) and 82% (\$222m).

In 2008-09, offshore oil and gas exploration expenditure was higher by 31% (\$777m) compared with the previous year while onshore exploration fell marginally, by less than 1% (\$2m).

## Mining industry

### Economic contribution

The contribution of an industry to the overall production of goods and services in an economy,



gross domestic product (GDP) is measured by gross value added (GVA). Information on the relationship between industry GVA and GDP is provided in the *Industry structure and performance* chapter.

Total production of the mining industry as measured by industry GVA (in volume terms), increased by 2% between 2006–07 and 2007–08, and more than doubled between 1987–88 and 2007–08 (graph 18.7).

Over the last 10 financial years, the largest annual decrease (3%) in production was in 2003–04 while the largest annual increase (8%) was in 2006–07.

Table 18.8 shows the industry GVA of the mining division as defined in the *Australian and New Zealand Standard Industrial Classification* (ANZSIC), 1993 (1292.0). The table also shows the contribution of the mining industry to Australia's GDP in the period 2003–04 to 2007–08.

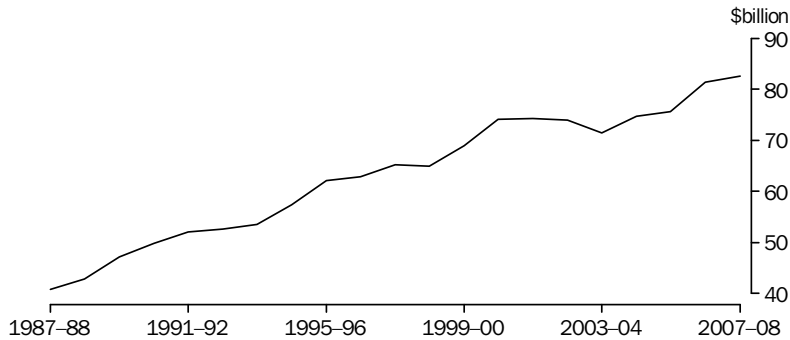
Production in the services to mining industry accounts for a small proportion (around 8%) of total mining production. However, the total value of services to mining may be larger than these figures indicate as some services may have been provided by businesses classified to other industries such as construction or business services.

### Contribution to state production

The importance of the mining industry in terms of production as measured by total factor income varies across the states and territories. Total factor income is a measure of state production. It is the total payments received by labour and owners of capital used in the production of the goods and services.

During the period 1997–98 to 2007–08 the Northern Territory experienced significant changes in the contribution of the mining industry to total state production, varying from

**18.7 MINING PRODUCTION(a)(b)**



(a) Industry gross value added. (b) Volume measures. Reference year is 2006–07.

Source: Australian System of National Accounts (5204.0).

**18.8 MINING INDUSTRY(a), Gross value added(b)**

Industry		2003–04	2004–05	2005–06	2006–07	2007–08	Percentage change from 2003–04 to 2007–08
Mining (excl. services to mining)	\$m	66 860	69 623	70 455	75 739	76 323	14.2
Services to mining	\$m	4 763	5 153	5 160	5 677	6 327	32.8
Total mining(c)	\$m	71 521	74 793	75 613	81 415	82 650	15.6
Contribution to GDP(d)	%	4.0	5.0	6.7	7.8	7.7	—

— nil or rounded to zero (including null cells)

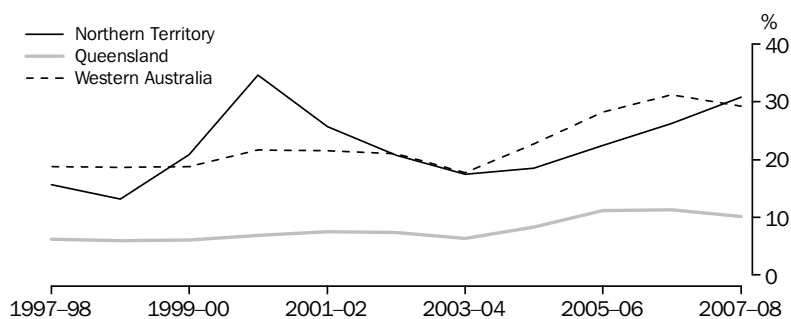
(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 edition.  
 (b) Volume measures. Reference year is 2006–07

(c) Volume measures for years other than 2005–06 and 2006–07 are not additive.

(d) In current prices.

Source: System of National Accounts, 2007–08 (5204.0).

### 18.9 MINING INDUSTRY CONTRIBUTION TO STATE PRODUCTION(a), Selected states



(a) State production as measured by total factor income at current prices.

Source: Australian National Accounts: State Accounts (5220.0).

### 18.10 VALUE OF EXPORTS(a), By industry of origin

	Mining	Manufacturing	All industries	SHARE OF TOTAL EXPORTS	
				Mining	Manufacturing
	\$m	\$m	\$m	%	%
2004-05	41 123	67 496	126 823	32.4	53.2
2005-06	57 690	75 102	152 492	37.8	49.2
2006-07	62 741	85 383	168 099	37.3	50.8
2007-08	73 832	88 496	180 857	40.8	48.9
2008-09	118 428	92 457	230 620	51.4	40.1

(a) On a 'free-on-board' basis.

Source: ABS data available on request, International trade.

13% in 1998-99 to 35% in 2000-01 (graph 18.9). In 2007-08 the mining industry accounted for 31% of total production in the Northern Territory.

In Western Australia, the contribution of the mining industry increased from 19% in 1997-98 to 29% in 2007-08 (graph 18.9).

The mining industry's share of Queensland total production varied between 6% and 11% in the period 1997-98 to 2007-08 (graph 18.9). In 2007-08, the mining industry's contribution to state production was 10%.

#### Exports

Table 18.10 shows the proportion of exports contributed by the mining industry based on exports by industry of origin.

In the period 2004-05 to 2008-09 the value of exports from the mining industry has almost tripled. By comparison, the value of exports from the manufacturing industry has grown by 37%. As

a consequence, the mining industry's contribution to total goods exported from Australia increased from 32% in 2004-05 to 51% in 2008-09, while that for the manufacturing industry fell from 53% to 40%.

#### Natural resource royalties

Natural resource royalties paid by mining businesses are collected by state and Northern Territory governments for mining onshore and up to three nautical miles offshore, and by the Australian Government outside that area. The basis of the mineral royalties varies between states. Some royalties are based on the value of production at mine site, others on sales value, gross proceeds or profit. The rates imposed also vary between commodities.

Onshore and within coastal waters, royalties are levied on mineral and petroleum production. State petroleum royalties and Commonwealth crude oil excise apply onshore and in coastal waters. Petroleum produced in offshore areas of

Australia (but not including the North West Shelf) is generally subject to an offshore petroleum resource rent tax levied by the Australian Government. Petroleum royalties and crude oil excise apply to production from the North West Shelf project.

Natural resource royalties expenses include payments under mineral lease arrangements, and resource rent taxes and royalties. In 2006–07 these mining royalties expenses totalled \$6,573m. The greatest proportion of royalties was paid by the oil and gas extraction industry (\$2,990m or 46%). Metal ore mining businesses (comprising copper, gold, mineral sands, silver-lead-zinc, bauxite, nickel and other metal ore mining) paid \$947m or 14% of total mining royalties in 2006–07. The coal mining industry paid \$1,696m (26%) and iron ore mining businesses \$849m (13%). The remaining royalties were paid by non-metallic mineral mining and quarrying, and exploration and other mining support services businesses.

## Structure and performance

The source for the statistics in this section is the annual *Economic Activity Survey* (EAS) of businesses, conducted by the *Australian Bureau of Statistics* (ABS).

Production of an industry can be measured in terms of industry value added (IVA), in much the same way as industry GVA. However, unlike industry GVA (the national accounts concept of production), IVA is not adjusted for a number of national accounting conventions, as the

information to make these adjustments cannot be collected in the EAS. The advantage of IVA, however, is the availability of more detailed (component) industry statistics.

In 2007–08 mining businesses paid a total of \$12,864m in wages and salaries, and generated \$120,881m in sales and service income and \$71,484m IVA (table 18.11).

In 2007–08, the metal ore mining industry contributed the largest proportion (38%) of total mining production measured in terms of IVA, followed by oil and gas extraction (33%) and coal mining (20%) (table 18.11). The metal ore mining industry also generated the most operating profit before tax (43%, \$19,466m) in 2007–08.

In terms of wages and salaries, the largest contributors were the metal ore (31%) and coal (27%) mining industries. The wages and salaries paid were \$3,958m from the metal ore mining industries and \$3,512m from the coal mining industry.

## Capital expenditure

Capital expenditure in 2006–07 was largest in the metal ore mining industry (36%), followed by the oil and gas extraction industry (28%) (table 18.12). Most of the capital expenditure on acquisitions was spent on dwellings, other buildings and other structures (56%). A significant proportion (25%) was also spent on plant, machinery and equipment. The coal mining industry accounted for the largest share of acquisition expenditure on plant, machinery and

**18.11 MINING INDUSTRY(a), Summary of operations–2007–08**

	Wages and salaries(b)	Sales and service income(c)	Operating profit before tax	Change in inventories	Industry value added
	\$m	\$m	\$m	\$m	\$m
ANZSIC subdivision	\$m	\$m	\$m	\$m	\$m
Coal mining	3 512	28 738	7 550	219	14 320
Oil and gas extraction	1 563	28 809	17 324	303	23 590
Metal ore mining	3 958	47 316	19 466	*1 006	27 158
Non-metallic mineral mining and quarrying	811	5 447	** 793	-38	2 133
Exploration and other mining support services	3 020	10 571	** 661	210	* 4 282
<b>Total mining</b>	<b>12 864</b>	<b>120 881</b>	<b>45 794</b>	<b>1 700</b>	<b>71 484</b>

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.

(b) Excludes the drawings of working proprietors. Includes capitalised wages.

(c) Includes rent, leasing and hiring income.

Source: Australian Industry, 2007–08 (8155.0).

## 18.12 MINING INDUSTRY(a), Acquisition and disposal of assets–2006–07

ANZSIC subdivision	CAPITAL EXPENDITURE ON				Disposal of assets	Net capital expenditure
	Plant, machinery and equipment	Dwellings, other buildings and other structures	Other, including land and intangibles	Total acquisitions		
	\$m	\$m	\$m	\$m	\$m	\$m
Coal mining	3 084	2 428	868	6 380	231	6 149
Oil and gas extraction	646	5 863	1 941	8 450	629	7 821
Metal ore mining						
Iron ore mining	505	3 548	154	4 207	21	4 186
Copper ore mining	219	434	104	757	10	747
Gold ore mining	619	507	625	1 751	29	1 722
Mineral sand mining	138	36	15	188	4	184
Silver-lead-zinc ore mining	280	600	64	944	-1	944
Other(b)	391	1 621	329	2 341	57	2 284
Total	2 151	6 747	1 291	10 189	121	10 067
Non-metallic mineral mining and quarrying	376	180	258	814	54	759
Exploration and other mining support services	1 085	1 078	998	3 161	319	2 842
<b>Total mining</b>	<b>7 342</b>	<b>16 297</b>	<b>5 355</b>	<b>28 994</b>	<b>1 355</b>	<b>27 639</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.

(b) Comprises bauxite mining, nickel ore mining and metal ore mining n.e.c.

Source: Mining Operations, Australia, 2006–07 (8415.0).

## 18.13 MINING INDUSTRY(a), Operating profit before tax

ANZSIC subdivision	2006–07	2007–08
	\$m	\$m
Coal mining	7 939	7 550
Oil and gas extraction	13 557	17 324
Metal ore mining	19 709	19 466
Non-metallic mineral mining and quarrying	**183	**793
Exploration and other mining support services	**–185	**661
<b>Total mining</b>	<b>41 203</b>	<b>45 794</b>

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.

Source: Australian Industry, 2007–08 (8155.0).

equipment (42%), while the metal ore mining industry accounted for the largest share of such expenditure on dwellings, other buildings and other structures (41%).

The metal ore mining and oil and gas extraction industries contributed most of the net capital expenditure, i.e. capital expenditure after deducting disposals of assets. Combined, these industries accounted for 65% of total net capital expenditure made in 2006–07.

## Operating profit before tax (OPBT)

Operating profit before tax (OPBT) is a measure of profit before extraordinary items are brought to account and prior to the deduction of income tax and appropriations to owners (e.g. dividends paid).

From 2006–07 to 2007–08, OPBT for the mining industry increased by \$4,591m or 11% (table 18.13). Oil and gas extraction contributed \$3,767m to this rise. Coal mining recorded a reduction of \$389m, while metal ore mining had a reduction of operating profit before tax of \$243m.

## Research and development (R and D)

The *Organisation for Economic Co-operation and Development* (OECD) defines R and D as comprising 'creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications'. R and D activity is characterised by originality. It has investigation as a primary objective, the outcome of which is new knowledge, with or without a specific practical application, or new or improved materials, products, devices, processes or services. R and D ends when work is no longer primarily investigative.

Graph 18.14 shows the type of R and D expenditure by the mining industry. For the period 1996–97 to 2006–07 other current expenditure other than labour costs is the major component of R and D expenditure for the mining industry, accounting for 79% of total mining R and D expenditure in 2006–07. This category includes: expenses on materials, fuels and other inputs; rent, leasing and hiring; repairs and maintenance; payments to outside organisations for use of specialised testing facilities or for analytical work, engineering or other specialised services in support of R and D projects carried out by the business; commission and consultant expenses for research projects carried out by the business (except direct labour costs); software for own account produced as part of R and D; and the proportion of expenditure on general services and overheads attributable to R and D activity. In the mining industry these expenses increased by \$1,649m

(464%), from \$355m in 1996–97 to \$2,045m in 2006–07. The amounts spent on capital expenditure and labour costs increased by \$81m (68%) and \$243m (277%) respectively over the same period. As a result, capital expenditure as a proportion of total mining R and D expenditure fell to 8% in 2006–07, significantly lower than the 21% recorded in 1996–97. Labour costs as a proportion of total mining R and D expenditure fell from 16% to 13% over this period.

During the period 1996–97 to 2006–07, the mining industry's contribution to total (all industries) R and D expenditure rose from 13% to 21%. The manufacturing industry's share of total R and D expenditure continued to be the highest, accounting for 33% in 2006–07.

## Production and trade of minerals

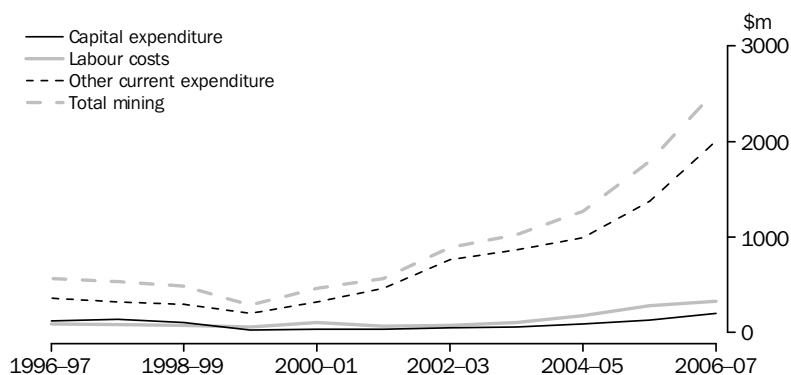
### Mineral commodities production

Tables 18.15 and 18.16 show the quantity and value respectively of selected minerals (including oil and gas) produced in Australia.

In the period 2002–03 to 2006–07 the most significant increases in production were for manganese ore (85%), liquefied natural gas (84%) and leucoxene (37%). Iron ore and concentrate, ilmenite, saleable black coal, bauxite and natural gas increased in production by 36%, 25%, 18%, 17% and 12% respectively.

Production of gold, lead, nickel, silver, zinc, brown coal, crude oil and diamonds decreased

**18.14 MINING INDUSTRY, Type of expenditure on R&D**



Source: *Research and Experimental Development, Businesses, Australia (8104.0)*.

### 18.15 MINERAL COMMODITIES PRODUCED, Quantity

		2002-03	2003-04	2004-05	2005-06	2006-07	Percentage change from 2002-03 to 2006-07
<b>METALLIC MINERALS</b>							
Bauxite	Mt	54	56	57	61	63	16.7
Copper (metal content)	'000 t	822	775	894	920	829	0.9
Gold (metal content)	t	273	267	255	247	239	-12.5
Iron ore and concentrate	Mt	194	205	236	246	263	35.8
Lead (metal content)	'000 t	654	664	643	703	587	-10.2
Nickel (metal content)	'000 t	192	182	180	184	174	-9.4
Silver (metal content)	t	1 913	2 019	2 226	2 007	1 635	-14.5
Uranium oxide	t	9 148	9 532	10 963	9 949	9 581	4.7
Zinc (metal content)	'000 t	1 327	1 215	1 184	1 216	1 227	-7.5
<b>FUEL MINERALS</b>							
Black coal (saleable)	Mt	275	284	305	311	323	17.5
Brown coal	Mt	67	66	67	68	66	-1.2
Crude oil	ML	27 061	23 670	20 864	18 772	21 724	-19.7
Condensate	ML	7 526	6 825	7 927	8 087	7 843	4.2
Natural gas	Mm <sub>3</sub>	24 176	24 748	23 847	23 838	27 092	12.1
Liquefied natural gas	t	7 765 874	7 787 261	11 037 572	12 543 261	14 321 230	84.4
<b>INDUSTRIAL MINERALS</b>							
Diamonds	'000 ct	38 996	32 499	22 800	29 264	24 618	-36.9
Salt	'000 t	10 438	10 635	12 186	11 467	10 857	4.0
Ilmenite	t	1 133 556	905 367	859 733	743 971	1 417 895	25.1
Synthetic rutile	t	597 274	592 178	na	na	na	na
Leucoxene	t	38 060	51 734	70 729	77 024	52 257	37.3
Rutile	t	192 629	189 229	na	na	na	na
Zircon	'000 t	468	473	471	455	489	4.4
Manganese ore	t	2 471 981	3 066 754	3 606 383	3 825 730	4 563 524	84.6

na not available

Source: Mining Operations, Australia, (8415.0).

between 2002-03 and 2006-07, with the largest falls recorded for diamonds (37%), crude oil (20%), silver (15%) and gold (13%).

The largest increases in percentage terms in the value of minerals production in the period 2002-03 to 2006-07 were for manganese ore (306%), copper (233%), nickel (232%), zinc (225%) and lead (153%). The value of salt in percentage terms fell by 10% (table 18.16).

As few minerals can be directly used in the form in which they are mined, most of these undergo processing and treatment before use.

Table 18.17 shows the production of the main manufactured products of mineral origin.

#### Exports of minerals and petroleum

Tables 18.18 and 18.19 show the quantity and value respectively of the main mineral commodities exported from Australia. In

2007-08, black coal (including metallurgical and thermal) was the largest export earner (\$24b), followed by iron ore and pellets (\$20b), refined gold (\$11b), crude oil and other refinery feedstock (\$10b), copper (\$7b), liquid natural gas (LNG) and alumina (\$6b each) and aluminium (\$5b).

Graph 18.20 shows the value of Australia's four largest mineral exports during the period 2000-01 to 2007-08. The value of exports of black coal, iron ore and pellets, crude oil and other refinery feedstock and refined gold all grew over this period, with iron ore and pellets recording the largest increase (317%), followed by black coal (126%) and refined gold (123%). Crude oil and other refinery feedstock increased 29% for the same period. The increases for black coal exports in 2000-01, 2004-05 and 2005-06 were due to an increase in unit values of metallurgical and thermal coal exports. The value of black coal exports fell in 2006-07 before growing again in

## 18.16 MINERAL, OIL AND GAS PRODUCTION, VALUE

						Percentage change from 2002-03 to 2006-07
	2002-03	2003-04	2004-05	2005-06	2006-07	2006-07
	\$m	\$m	\$m	\$m	\$m	%
Bauxite	782	817	862	875	847	8.3
Copper (metal content)	2 260	2 543	3 777	6 290	7 525	233.0
Gold (metal content)	5 046	4 731	4 635	5 609	6 284	24.5
Iron ore and concentrate	5 298	5 359	8 330	12 897	15 975	201.5
Lead (metal content)	502	654	830	1 015	1 271	153.2
Nickel (metal content)	2 528	3 139	3 613	3 816	8 402	232.4
Silver (metal content)	490	530	666	801	857	74.9
Uranium oxide	308	382	463	530	664	115.6
Zinc (metal content)	1 778	1 649	1 852	3 484	5 785	225.4
Black coal (saleable)(a)	12 724	11 566	17 720	26 317	24 368	91.5
Brown coal	534	531	843	851	1 016	90.3
Crude oil	7 888	6 721	8 471	10 080	11 416	44.7
Condensate	2 207	1 925	3 101	4 045	3 970	79.9
Natural gas	2 250	2 380	2 445	2 547	2 915	29.6
Liquefied natural gas	3 131	2 776	3 953	4 930	4 986	59.2
Diamonds	788	520	468	np	np	na
Salt	260	211	222	237	234	-10.0
Ilmenite	n.p.	n.p.	n.p.	np	np	np
Synthetic rutile	354	307	401	419	374	5.6
Leucosene	16	20	22	24	20	25.0
Rutile	np	np	np	np	np	np
Zircon	np	np	np	400	np	na
Manganese ore	275	282	479	478	1 117	306.2

na not available

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Excludes production from Tasmania.

Source: Mining Operations, Australia (8415.0).

2007-08, while the export value of crude oil and other refinery feedstock fell to \$5b in 2003-04 before growing to reach \$10b in 2007-08.

The major markets for Australian mineral and petroleum exports to Japan, China, the Republic of (South) Korea and India for the period 1992-93 to 2007-08 are shown in graph 18.21.

Japan was consistently the main destination for Australian minerals, receiving 25% (\$28b) of total mineral exports by value in 2007-08. The main minerals by volume exported to Japan were aluminium, coal, iron ore, crude oil and other refinery feedstock and liquified petroleum gas (LPG). Of these minerals, coal was the most significant. In 2007-08, 67 megatonnes (Mt) of thermal (or steaming) coal, and 25 Mt of both high quality and other metallurgical (or coking) coal were exported to Japan (58%, 30% and 48% respectively of total Australian export volumes for these commodities). In the same year, 2,280

megalitres (ML) of crude oil and other refinery feedstock, 1,587 ML of LPG and 77,310 kilotonnes (kt) of iron ore were also exported to this country. These exports respectively accounted for 14%, 61% and 29% of Australia's total export volumes of crude oil and other refinery feedstock, LPG and iron ore. Aluminium exports to Japan contributed 36% of total Australian exports (by volume) of aluminium in 2007.

Other major export destinations in 2007-08 were China, the Republic of (South) Korea and India. Major exports to the Republic of (South) Korea included iron ore, thermal coal, lead ores and concentrates, refined lead metal and crude oil and other refinery feedstock which accounted for 11%, 16%, 60%, 20% and 23% respectively of export volume totals.

China has become a major export destination for iron ore and zinc ores and concentrates,

## 18.17 PRODUCTION OF PRINCIPAL MANUFACTURED PRODUCTS, BY MINERAL ORIGIN

		2003-04	2004-05	2005-06	2006-07	2007-08
<b>METALS</b>						
Non-ferrous						
Alumina	'000 t	16 690	17 161	17 826	18 506	19 359
Refined aluminium	'000 t	1 877	1 890	1 912	1 954	1 964
Refined copper	'000 t	459	479	461	435	444
Lead bullion	'000 t	143	153	141	114	152
Refined lead	'000 t	247	234	234	191	203
Refined zinc	'000 t	502	464	446	496	507
Refined tin	t	553	445	736	321	na
<b>FERROUS</b>						
Raw steel (a)	'000 t	9 430	7 395	7 886	8 010	8 121
<b>PRECIOUS</b>						
Refined gold	t	397	345	380	360	364
Refined silver	t	619	722	655	618	605
<b>PETROLEUM</b>						
Petroleum products						
Diesel automotive oil	ML	12 544	12 822	10 154	11 055	12 177
Industrial and marine diesel fuel	ML	84	22	31	21	3
Fuel oil (b)	ML	1 105	1 092	1 048	942	979
Automotive gasoline	ML	17 375	17 913	16 528	17 732	17 079
<b>BUILDING MATERIALS</b>						
Clay bricks (standard brick equivalent)	m	1 789	1 705	1 606	1 570	1 459
Portland cement	'000 t	8 460	8 925	8 910	9 380	9 839
<b>CHEMICALS</b>						
Single superphosphate	'000 t	1 446	1 594	1 309	944	1 413

na not available

(a) Includes recovery from scrap.

(b) Excludes refinery fuel.

Source: Manufacturing Production, Australia (8301.055.001); Australian Bureau of Agricultural and Resource Economics (ABARE), 'Australian Mineral Statistics', various issues and 'Australian Commodity Statistics 2008'.

accounting for 53% and 30% respectively of total export volumes for these commodities in 2007.

Exports to India have been generally increasing since 1992-93, with a sharp increase between 2002-03 and 2003-04 (107%). Gold exports of refined and unrefined bullion to India accounted for 39% (161 tonnes) of Australian exports of gold in 2007, while copper concentrate exports to India in 2007-08 (565,000 tonnes) were 37% of total Australian copper concentrate exports.

### Imports of minerals and petroleum

Many imported mineral and petroleum commodities have had a certain amount of manufacturing applied to their raw forms. Table 18.22 provides details of the major commodities imported in the period 2004-05 to 2007-08. In terms of value, the largest imports for 2007-08 were for crude oil and other refinery feedstock

(\$17b), followed by gold (\$7b). The major sources of Australian imports of crude oil and other refinery feedstock in 2007-08 were Vietnam, Malaysia and Indonesia, with a combined value of \$14b (52% of the total import quantity for this commodity).

Graph 18.23 shows imports of selected major minerals and petroleum during the period 2001-02 to 2007-08. The value of imports of crude oil and other refinery feedstock were significantly higher than the import values of other minerals, particularly in 2006-07 and 2007-08, where the values of imports of this commodity were \$13b and \$17b respectively.



## 18.18 EXPORTS OF MAJOR MINERALS, OIL AND GAS

		2004-05	2005-06	2006-07	2007-08
Alumina	kt	14 073	14 499	15 056	15 739
Aluminium (ingot metal)	kt	1 512	1 617	1 638	1 650
Coal, black					
Metallurgical	Mt	125	120	132	137
Thermal	Mt	106	111	112	115
Copper	kt	701	790	699	733
Diamonds	'000 ct	32 471	25 354	24 632	16 544
Gold, refined	t	309	315	400	382
Iron and steel					
Iron ore and pellets	Mt	228	239	257	294
Iron and steel	kt	2 338	2 428	2 648	2 131
Lead	kt	782	756	635	589
Manganese ore and concentrate	kt	3 128	3 215	4 667	5 105
Oil and gas					
Crude oil and other refinery feedstock	ML	15 731	13 026	15 965	15 975
LNG	Mt	11	12	15	15
LPG	ML	2 844	2 800	2 824	2 589
Salt	kt	12 128	10 776	10 749	10 686
Tin	t	1 529	1 556	1 867	3 079
Titanium minerals					
Ilmenite concentrate	kt	633	722	999	894
Rutile concentrate	kt	158	169	307	399
Uranium oxide	t	11 249	10 253	9 519	10 139
Zinc	kt	1 427	1 328	1 321	1 507
Zircon concentrate	kt	428	438	555	637

Source: Australian Bureau of Agricultural and Resource Economics (ABARE), 'Australian Commodity Statistics, 2008'.

## Profile of major minerals, oil and gas

*This section is based on information from Geoscience Australia and the Australian Bureau of Agricultural and Resource Economics (ABARE).*

*Note: Values are given in Australian currency unless otherwise stated.*

### Minerals

Maps 18.24, 18.25 and 18.26 show selected mines and deposits – map 18.24 covers gold and diamonds; map 18.25 covers bauxite, coal, iron ore, manganese ore and uranium; map 18.26 covers base metals (copper, zinc, lead and nickel) and mineral sands.

### Bauxite, alumina and aluminium

Bauxite is a heterogeneous naturally occurring material from which alumina and aluminium are produced. The principal minerals in bauxite are gibbsite, boehmite and diaspore (which has the

same composition as boehmite but is denser and harder). Bauxite is the ore from which alumina (aluminium oxide) is extracted while aluminium is produced from smelting alumina.

Australia's aluminium industry is a large integrated industry of mining, refining, smelting and semi-fabrication, which is of major economic importance nationally and globally. Its 2008 EDR of bauxite (6 gigatonnes (Gt)) provides a world class resource base for the industry, which comprises five bauxite mines, seven alumina refineries, six primary aluminium smelters, twelve extrusion and two rolled product (sheet, plate and foil) mills. In 2007 Australia was the largest producer of bauxite and alumina.

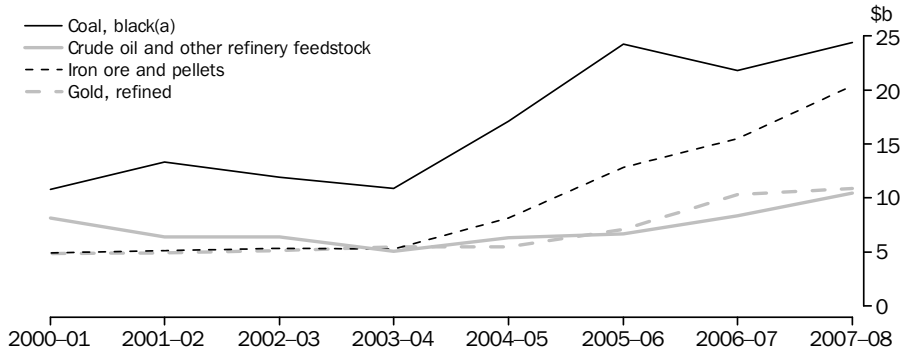
Production in 2007 totalled 63 million tonnes (Mt) of bauxite, 20 Mt of alumina and 2 Mt of aluminium (ingot metal). Production of bauxite at Weipa in Queensland during 2007 was a record 17 Mt, an increase of 5% from 2006. This increase was mainly due to increased production from the Andoom mine north of Weipa.

### 18.19 EXPORTS OF MAJOR MINERALS, OIL AND GAS, VALUE

	2004-05	2005-06	2006-07	2007-08
	\$m	\$m	\$m	\$m
Alumina	4 383	5 262	6 243	5 809
Aluminium (ingot metal)	3 726	4 788	5 650	4 967
Coal, black				
Metallurgical	10 758	17 003	15 039	15 996
Thermal	6 336	7 206	6 758	8 364
Copper	3 082	5 653	6 526	6 728
Diamonds	683	836	726	664
Gold, refined	5 523	7 089	10 320	10 903
Iron and steel				
Iron ore and pellets	8 120	12 854	15 512	20 423
Iron and steel	2 031	1 674	1 743	1 562
Lead	1 041	1 296	1 579	2 050
Manganese ore and concentrate	473	424	482	1 532
Oil and gas				
Crude oil and other refinery feedstock	6 330	6 638	8 317	10 487
LNG	3 199	4 416	5 222	5 854
LPG	804	1 002	1 038	1 182
Salt	226	229	239	232
Tin	8	12	25	42
Titanium minerals				
Ilmenite concentrate	63	76	113	104
Rutile concentrate	114	138	259	277
Uranium oxide	475	546	660	887
Zinc	1 466	2 540	4 298	3 352
Zircon concentrate	319	398	478	421

Source: Australian Bureau of Agricultural and Resource Economics (ABARE), 'Australian Commodity Statistics, 2008'.

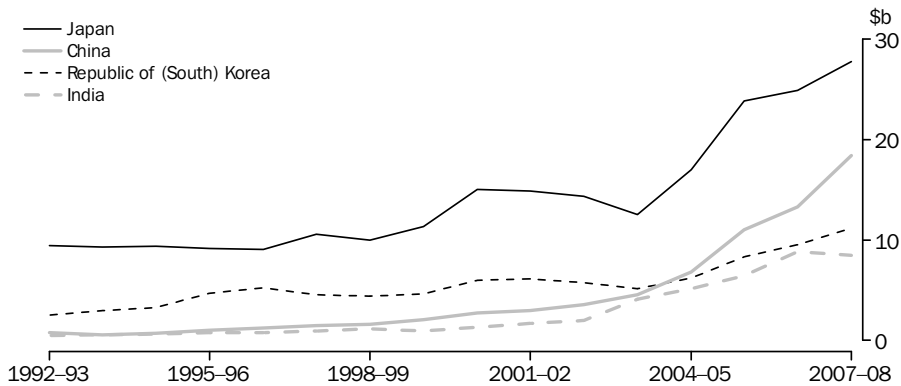
### 18.20 EXPORTS OF SELECTED MINERALS



(a) Includes metallurgical and thermal.

Source: Australian Bureau of Agricultural and Resource Economics (ABARE), 'Australian Commodity Statistics, 2008'.

### 18.21 EXPORTS OF MINERAL COMMODITIES, By country of destination



Source: Australian Bureau of Agricultural and Resource Economics (ABARE), 'Australian Commodity Statistics, 2008.

### Coal

Black coal is a solid rock formed from brown coal after greater heat and pressure have been applied. Black coals are distinguished by rank and may be sub-bituminous, bituminous or anthracite. Black coal is primarily used for electricity generation and the production of coke, which is integral to the production of iron and steel. Black coal is also used as a source of heat in the manufacture of cement and food processing. Brown coal is a less matured form of coal. It has a high 'in situ' moisture content (up to 60%) with a correspondingly low heating value. It is highly susceptible to spontaneous combustion. Brown coal is used widely for power generation, is made into briquettes, and can be converted to liquid or gaseous fuels.

In December 2007 there were 118 operating black coal mines in Australia which included 74 open cut mines and 44 underground mines. The bulk of the mines were in New South Wales (62) and Queensland (49). Most of the coal was produced in New South Wales (41%) and Queensland (56%), with locally significant operations at Collie (Western Australia), Leigh Creek (South Australia) and in the Fingal Valley (Tasmania).

In 2007-08 Australia produced 417 Mt of raw black coal (414 Mt in 2006-07) which yielded 325 Mt of saleable coal (324 Mt in 2006-07). Exports of black coal for 2007-08 comprised 137 Mt of metallurgical coal valued at \$16 billion and 115 Mt of thermal coal valued at \$8 billion.

Australia has 6% of the world's recoverable black coal EDR (as at the end of 2008) and ranks sixth behind the United States of America (31%), Russia (21%), China (13%), India (8%) and South Africa (7%).

Australia produced about 6% of the world's black coal in 2007 and ranked fourth after China (45%), the United States of America (18%) and India (8%).

Australian brown coal production for 2006-07, all of which was from Victoria, was 66 Mt with a value of around \$820 million. The La Trobe Valley mines of Yallourn, Hazelwood and Loy Yang in Victoria produce about 98% of Australia's brown coal.

Australia has about 25% of world recoverable brown coal EDR and is ranked first. It produces, however, only about 8% of the world's brown coal and is ranked the fifth largest producer after Germany (21%), the United States of America (9%), Russia (9%), and Greece (8%).

### Copper

Copper occurs in various forms. It can occur naturally in its pure state (native copper) but is principally mined as chalcopyrite. Copper is one of the most important and widely used metals of modern society due to its properties of:

- high electrical and heat conductivity
- ductility and malleability

## 18.22 IMPORTS OF MAJOR MINERALS AND PETROLEUM

		2004-05	2005-06	2006-07	2007-08
		QUANTITY			
Diamonds	'000 ct	2 168	4 098	3 430	2 964
Gold	na	na	na	na	na
Iron and steel					
Iron ore and pellets	kt	4 648	5 026	4 722	4 401
Iron and steel	kt	2 116	2 191	2 318	1 848
Petroleum					
Crude oil and other					
refinery feedstock	ML	26 054	24 416	25 345	26 222
LPG	ML	540	599	748	965
Automotive gasoline	ML	3 131	3 687	2 912	3 533
Aviation turbine fuel	ML	983	817	1 045	1 846
Diesel fuel	ML	3 944	6 122	5 439	7 470
Fuel oil	ML	1 281	1 418	1 363	1 625
Lubricants	ML	327	370	365	396
Other products	ML	981	2 111	2 146	2 147
Phosphate rock	kt	797	655	472	707
Platinum and platinum group metals					
	kg	2 391	2 097	4 571	2 518
		VALUE			
Diamonds	\$m	347	403	397	444
Gold	\$m	2 462	4 800	5 309	7 311
Iron and steel					
Iron ore and pellets	\$m	145	222	338	311
Iron and steel	\$m	2 041	2 075	2 479	2 225
Petroleum					
Crude oil and other					
refinery feedstock	\$m	9 995	12 820	13 360	17 059
LPG	\$m	143	198	261	436
Automotive gasoline	\$m	1 463	2 342	1 872	2 719
Aviation turbine fuel	\$m	483	527	668	1 505
Diesel fuel	\$m	1 933	4 071	3 466	6 155
Fuel oil	\$m	364	569	536	831
Lubricants	\$m	288	418	495	477
Other products	\$m	448	637	1 285	1 331
Phosphate rock	\$m	49	42	32	80
Platinum and platinum group metals					
	\$m	59	70	186	111

na not available

Source: Australian Bureau of Agricultural and Resource Economics (ABARE), 'Australian Commodity Statistics, 2008' and 'Australian Mineral Statistics,' various issues.

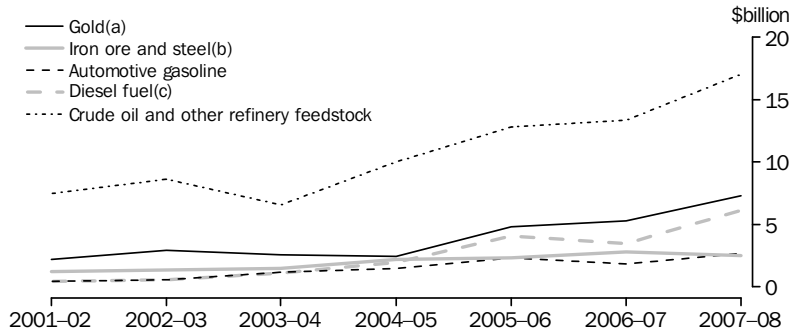
- resistance to corrosion
- ability to form alloys with other metals.

These properties enable copper to be used in a wide range of applications. The largest use of copper is in the electrical industry where copper wire and cable account for about half of the world's copper production. Other major markets are the motor vehicle and construction sectors. Copper is also an integral part of the expanding information technology sector and is used in the

manufacture of computers, mobile phones, fax machines and televisions.

Major Australian copper mining and smelting operations are at Olympic Dam (South Australia) and Mt Isa (Queensland), with smaller projects in New South Wales, Queensland, Western Australia and Tasmania. Australia's EDR of copper at the end of 2008 was 78 Mt, giving it the world's second largest holding of copper EDR with 13% of the total.

**18.23 IMPORTS OF SELECTED MINERAL COMMODITIES**



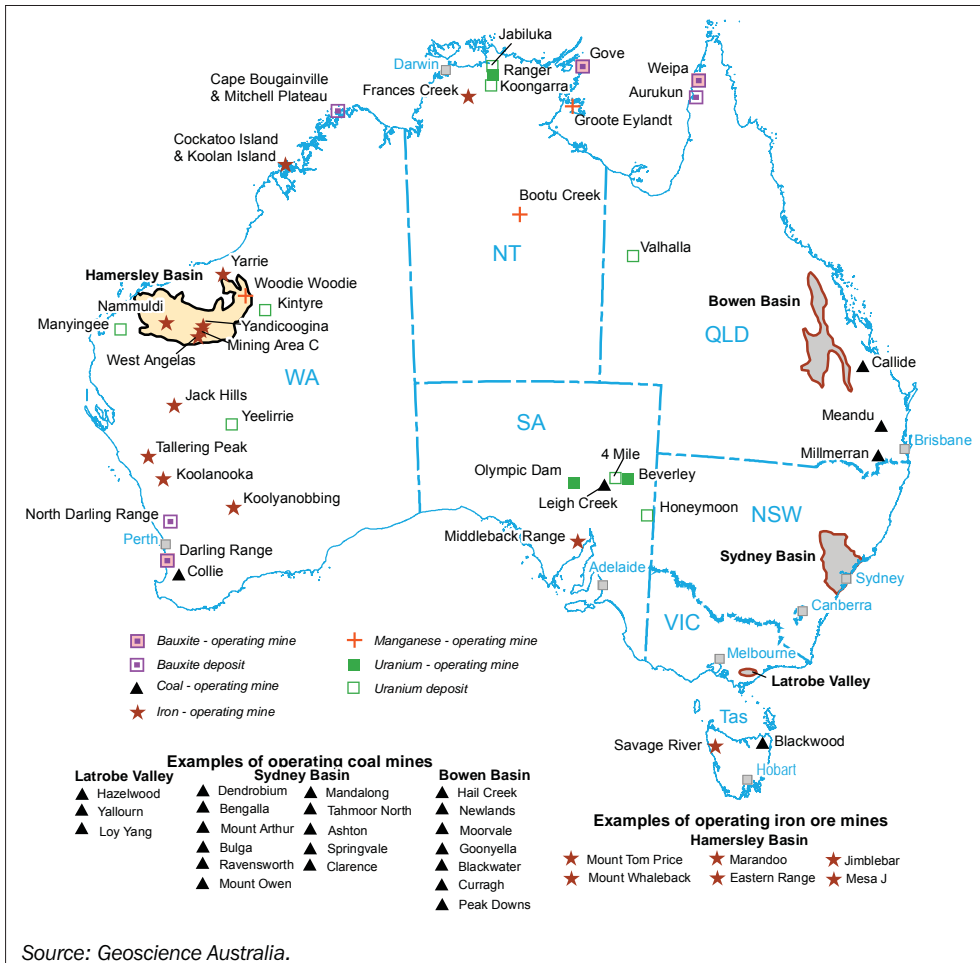
(a) Refined and unrefined bullion. (b) Includes iron ore and pellets, and iron and steel.  
 (c) Includes automotive diesel oil, and industrial and marine diesel fuel.

Source: Australian Bureau of Agricultural and Resource Economics (ABARE), 'Australian Commodity Statistics, 2008.'

**18.24 SELECTED MINES AND DEPOSITS OF GOLD AND DIAMONDS—2009**



**18.25 SELECTED MINES AND DEPOSITS OF BAUXITE, COAL, IRON ORE, MANGANESE AND URANIUM—2009**



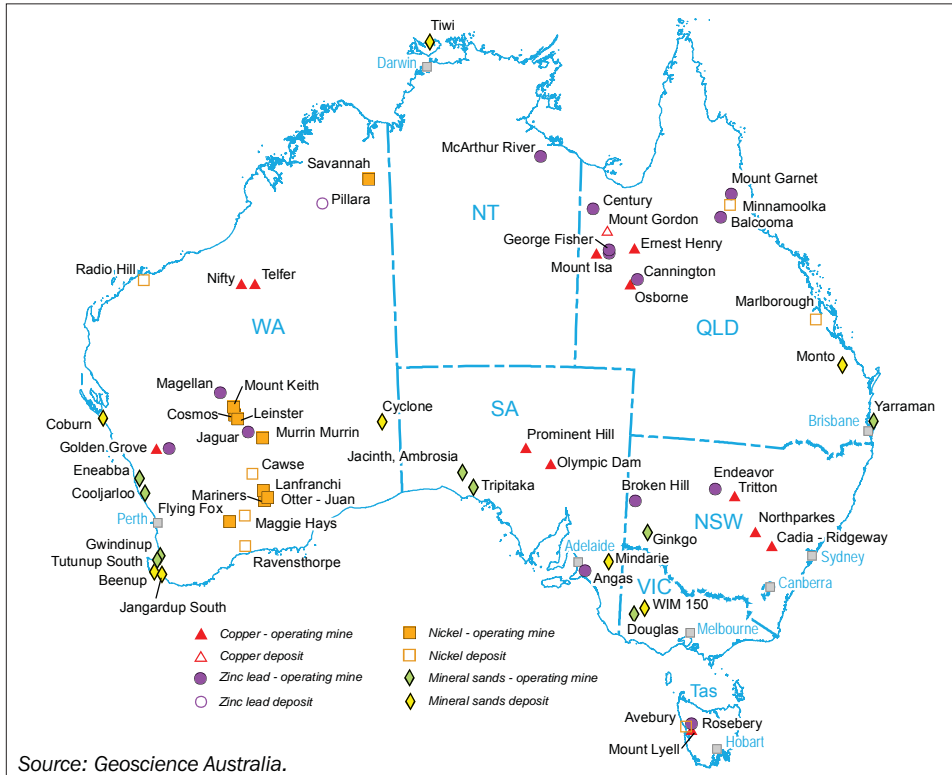
Mine production of copper in 2007 was 871 kilotonnes (kt) of contained copper, similar to that in 2006 (875 kt). Queensland dominated Australian production with 376 kt (largely from Mt Isa). This was 7% more than in 2006. South Australia regained the second largest producer position over New South Wales despite a decrease of 3% to 179 kt. Olympic Dam produced all of South Australia's output, contributing 21% of national production. New South Wales produced 168 kt in 2007, 19% less than in 2006 and mostly from Cadia Ridgeway and Northparkes. Western Australia produced 118 kt, up 14%, and Tasmania produced 30 kt, down 3%.

As a producer, Australia's copper mine production ranked fifth in the world in 2007, with 6% of world output, after Chile (37%), the United States of America and Peru (both 8%) and China (6%).

**Diamond**

Diamond is composed of carbon, and is the hardest known natural substance, although a sharp blow can shatter it. Diamonds occur naturally but are extremely rare compared with other minerals. Diamonds are thought to form deep in the earth at high temperatures and pressures and are carried to the surface or near surface by volcanic rocks in narrow cylinder-like

## 18.26 SELECTED MINES AND DEPOSITS OF BASE METALS AND MINERAL SANDS–2009



bodies called 'pipes'. A large proportion of industrial diamond is manufactured, and it is also possible to produce synthetic diamonds of gem quality. Uses for diamonds include jewellery, computer chip manufacture, drill bit facing, and stone cutting and polishing. A diamond's mass is measured by carat weight, with one carat (c) defined as 0.2 grams.

Australia produced 19 million carats (Mc) of diamonds in 2007, making it the world's fourth largest producer of diamonds by weight after Russia, Botswana and Congo. It is the third largest producer of industrial grade diamonds after Congo and Russia, and the fourth largest producer of natural gem/cheap gem diamonds after Russia, Botswana and Canada.

Australia's EDR at the end of 2008 of gem/near gem diamonds was 92 Mc and industrial diamonds 96 Mc. Australia's EDR of industrial diamonds is ranked third in the world, with 16% of world EDR.

Australian production was almost entirely from Rio Tinto Ltd's Argyle mine in the Kimberley region of Western Australia, which produced 19 Mc. Argyle production is mostly industrial and cheap diamonds. Due to lower grades, production was 36% less than in 2006 despite a 2% increase in the volume of ore treated. Production from the Ellendale mine in the West Kimberley region increased to 475,735 c in 2007, up from 213,000 c in the previous year. Ellendale is noted for high-value fancy yellow gem diamonds.

### Gold

Gold has a range of uses but the two principal applications are as an investment instrument and in the manufacture of jewellery. Secondary uses, in terms of the amount of gold consumed, are in electronic and dental applications.

Gold resources occur and are mined in all Australian states and the Northern Territory. Australia's EDR of gold (at the end of 2008) was

6,255 tonnes, the second largest in the world after South Africa.

Australian gold mine production in 2007 (reported by ABARE) was 245 tonnes. This level of production made Australia the third largest mine producing country in the world in 2007, after China (281 tonnes) and South Africa (270 tonnes). Australia's largest producer in 2007 was the Telfer operation in Western Australia where 19 tonnes (0.62 million ounces) was produced. Telfer was followed by the Super Pit at Kalgoorlie where production was almost 19 tonnes (0.61 million ounces) and Sunrise Dam which produced just under 19 tonnes (0.60 million ounces). In 2007, Western Australia dominated Australian production with 155 tonnes, just under two-thirds of total Australian output.

### **Iron ore**

Iron ore is the source of primary iron for the world's steel industries. Around 97% of Australian iron ore production occurs in the Hamersley Basin (Western Australia). Small production also comes from elsewhere in Western Australia, Tasmania, South Australia and New South Wales. Australia's EDR in 2007 was about 13% of world EDR. Western Australia has almost all (99%) of Australia's EDR with about 89% occurring in the Pilbara district. In 2007 Australia was ranked as having the fourth largest iron ore holding in the world, after Ukraine (19%), Russia (16%) and China (14%).

Australia's production of iron ore in 2007 (reported by ABARE) was 299 Mt, which was around 18% of the world's iron ore, making Australia the world's third largest producer after Brazil (22%) and China (20%).

### **Manganese ore**

About 90% of the world's production of manganese is used in the desulphurisation and strengthening of steel. Other uses include the manufacture of dry batteries, as a colorant, and as an ingredient in plant fertilisers and animal feed. Manganese ore was mined in the Northern Territory and Western Australia in 2007.

Production of manganese ore in 2007 reached 5 Mt, 15% of world manganese ore output, making Australia third behind China (23%) and South Africa (21%). Australian production comes from three mines – Woodie Woodie (Western

Australia) and Groote Eylandt and Bootu Creek (both in the Northern Territory). Australia's EDR of manganese ore, at 181 Mt (at the end of 2008) is 13% of world EDR.

### **Mineral sands**

The three main minerals mined from Australian mineral sands deposits are the titanium-bearing minerals rutile and ilmenite and the zirconium-bearing mineral zircon. Rutile and ilmenite are used mainly in the production of titanium dioxide pigment. A small portion, less than 4% of total titanium mineral production and typically rutile, is used in making titanium sponge metal. Zircon is used to make glazes on ceramic tiles opaque, and is used in refractories and the foundry industry.

Australia's EDR of ilmenite at the end of 2008 was 212 Mt. About 56% is in Western Australia, 22% in Queensland and the rest in Victoria (11%), New South Wales (7%), and South Australia (3%). Australia accounts for 17% (the second largest holding behind China at 30%) of the world's EDR of ilmenite. India has 13%, South Africa 9%, and Brazil 6% of the world's ilmenite EDR.

Victoria has the largest share of Australia's rutile EDR with 33%, followed by Queensland (25%), New South Wales (20%), Western Australia (18%) and South Australia (3%). According to Geoscience Australia and United States Geological Survey (USGS) data, Australia has the world's largest EDR of rutile (50%), followed by South Africa (18%) and India (16%). At the end of 2008 Australia's EDR of rutile was 23 Mt.

Australia's EDR for zircon at the end of 2008 was 39 Mt, with Western Australia, Victoria and Queensland holding around 76% of Australia's zircon EDR. In world terms, Australia has the world's largest EDR of zircon, with 45%.

Although Australia has substantial EDR of mineral sands, Geoscience Australia estimates that around 16% of ilmenite, 25% of rutile and 21% of zircon EDR is unavailable for mining, as they in areas quarantined from mining that are largely incorporated into national parks. Deposits in this category include Moreton Island, Bribie Island and Fraser Island, the Cooloola sand mass, the Byfield sand mass and the Shoalwater Bay area (all areas in Queensland), and the Yuraygir, Bundjalung, Hat Head and Myall Lakes National Parks in New South Wales.



In 2007 Australia produced 2 Mt of ilmenite, 312 kt of rutile and 601 kt of zircon. About 875 kt of ilmenite was exported during 2007, as well as 345 kt of rutile and 610 kt of zircon from production and stockpiles. The ilmenite not exported was upgraded to synthetic rutile, with Australia producing 726 kt of this commodity.

Australia was the largest producer of ilmenite with 22% of world production, followed by South Africa with 19%, as well as being the largest producer of rutile with about 53%, followed by South Africa with 20% and Sierra Leone with 14%. Australia was also the largest producer of zircon with 47% of world production, followed by South Africa at 31%.

### **Nickel**

More than 80% of nickel production is used in alloys. When alloyed (mixed) with other elements, nickel imparts toughness, strength, resistance to corrosion and various electrical, magnetic and heat resistant properties. About 65% of world nickel output is consumed in the manufacture of stainless steel which is used widely in the chemical industry, motor vehicles, the construction industry and in consumer products such as sinks, cooking utensils, cutlery and white-goods.

Australia's EDR of nickel was 26 Mt at the end of 2008. Western Australia has the largest nickel resources, with more than 90% of total Australian EDR. Australia holds the largest share of the world's EDR (38% in 2007), followed by New Caledonia and Russia (both 10%) and Cuba (8%).

ABARE reported that Australia's nickel mine production in 2007 was 184 kt, all of which came from Western Australia. The value of all nickel products exported was almost \$8b. Australia was the world's third largest producer in 2007 (nickel content of all ores and concentrates), accounting for 11% of estimated world nickel mine production. Russia was the largest producer with 288 kt (18% of world output), followed by Canada with 255 kt (16%), Indonesia with 188 kt (12%), Australia, and New Caledonia with an output of 125 kt (8%).

### **Tantalum**

Tantalum minerals have more than 70 different chemical compositions, of which tantalite,

microlite, and wodginite are of greatest economic importance.

The world's largest tantalum resource holder is Brazil with an estimated 88 kt, followed by Australia with 42 kt (deposits at Greenbushes and Wodgina in south west Western Australia) and Canada with 3 kt.

Australia is the world's largest producer of tantalum, in the form of tantalum concentrates. World tantalum production in 2007 was estimated by Geoscience Australia (using Western Australian Department of Industry and Resources and USGS data) to be 985 tonnes. Production was dominated by Australia, with 435 tonnes in 2007, which amounted to about 44% of world output. According to the USGS, other main producers were Brazil with 250 tonnes, and Mozambique, Canada and Ethiopia, each producing 70 tonnes.

### **Uranium**

Major uses for uranium are as fuel in nuclear power reactors to generate electricity, in the manufacture of radioisotopes for medical applications and in nuclear science research using neutrons from reactors.

Australia had 1,163 kt of uranium in Reasonably Assured Resources recoverable at costs of less than US\$80/kilogram of uranium at the end of 2008, representing around 34% of world resources in this category. Approximately 95% of Australia's total uranium resources in EDR are within the following six deposits:

- Olympic Dam (South Australia) which is the world's largest uranium deposit
- Ranger, Jabiluka and Koongarra in the Alligator Rivers region (Northern Territory)
- Kintyre and Yeelirrie (Western Australia).

Approximately 16% of uranium EDR is inaccessible for mining.

Three uranium mines operated in 2007 – Ranger open cut, Olympic Dam underground mine, and the Beverley (South Australia) in situ leach operations. In 2007, Ranger produced 5,412 tonnes of uranium oxide, Olympic Dam 3,985 tonnes and Beverley 748 tonnes for a total of 10,145 tonnes, 13% higher than for 2006. Australia, with approximately 20% of world uranium production in 2007, is the world's second largest producer after Canada.

Exports of uranium oxide in 2007–08 were 10,139 tonnes, valued at \$887m. Exports of Australian uranium are controlled by stringent safeguard conditions which ensure that Australia's uranium is used only for peaceful purposes and does not enhance or contribute to any military applications. These conditions are given effect through bilateral safeguards agreements between Australia and the importing country. In the case of non-nuclear-weapon countries, it is a minimum requirement that International Atomic Energy Agency (IAEA) safeguards apply to all existing and future nuclear activities in that country. In the case of countries with nuclear weapons, there must be treaty-level assurance that Australian uranium will be used only for peaceful purposes and it must be subject to that country's safeguards agreement with the IAEA.

Australian mining companies supply uranium under long-term contracts to electricity utilities in the United States of America, Japan, South Korea and Canada as well as members of the European Union including the United Kingdom, France, Germany, Spain, Sweden, Belgium, and Finland.

### **Zinc, lead, silver**

Zinc is the 23rd most abundant element in the earth's crust and the fourth most common metal in use after iron, aluminium and copper. The construction, appliance and vehicle manufacturing industries use large amounts of zinc, mainly as coatings on steel beams, sheet steel and vehicle panels in the automotive industry. The widespread use of zinc as a protective coating is due mainly to its resistance to normal weathering. This is an electrochemical reaction known as galvanic action. Zinc is used also in brass, alloy die cast precision components, pigments, salts, as oxide additives to rubber and for agricultural chemicals as well as for wrought or rolled products.

The widespread occurrence, relatively simple extraction, and combination of desirable properties have made lead useful to humans since at least 5,000 BC. In deposits mined today, lead (in the form of galena) is usually associated with zinc, silver and commonly copper, and is extracted as a co-product of these metals. More than half of the lead currently used comes from recycling, rather than mining. The largest use is in batteries for vehicles and communications. Less important uses include cable sheathing, solder, casting alloys, chemical compounds, ammunition,

ceramics and glass in TV and computer screens for radiation protection. Uses for lead could increase in the future in large storage batteries used for load-levelling of electrical power and in electric vehicles.

The relative scarcity, attractive appearance and malleability of silver has made it suitable for use in jewellery, ornaments and silverware. Its extensive use in coins throughout history has declined over the past 40 years. In Australia, the 1966 fifty-cent piece was the last coin in general use to contain silver (80% silver, 20% copper). Silver is mined and produced mainly as a co-product of copper, lead, zinc, and to a lesser extent, gold. Currently, photographic paper and film followed by the electronics and jewellery/tableware industries are the most important users of silver. Other uses include mirrors, as an anti-bacterial agent, for example in water treatment (as an ioniser with copper in domestic swimming pools) and for biocide and bacteriostatic activity in plastic and textiles formulations.

Australian EDR of zinc at the end of 2008 was 53 Mt, with Queensland holding the largest resource. Northern Territory, New South Wales and Western Australia also have zinc EDR.

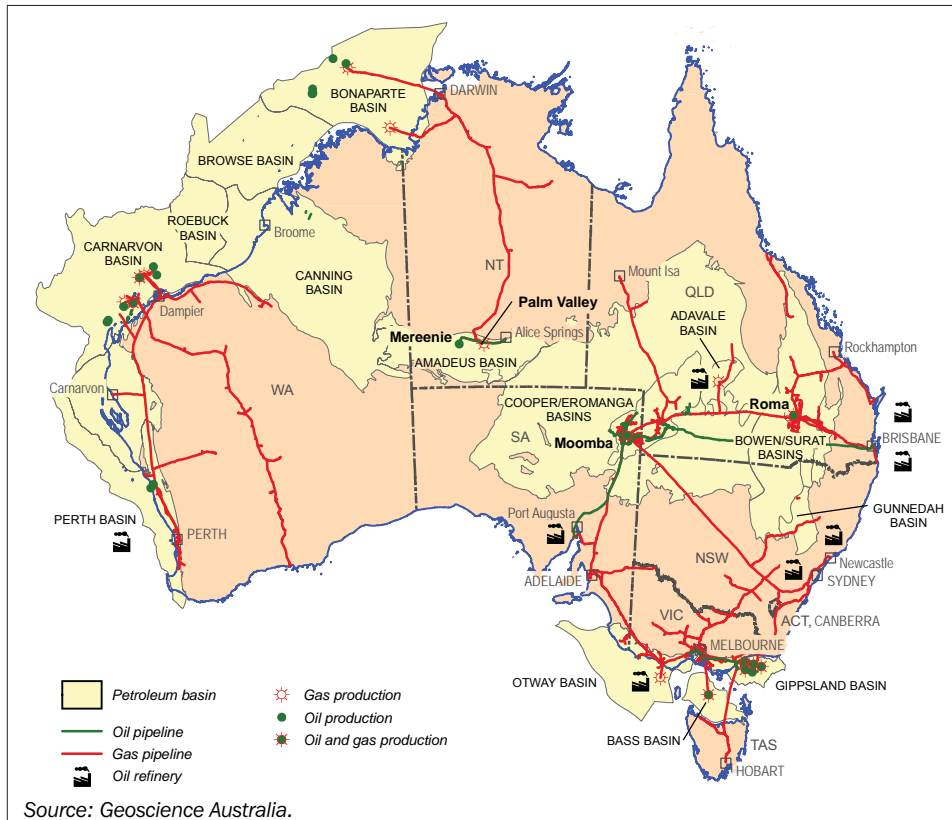
Australia's EDR of 27 Mt of lead is around 30% of world EDR. Queensland has around 67% of total Australian EDR. Other holdings are in the Northern Territory, New South Wales and Western Australia.

EDR for silver at the end of 2008 was 61 Kt, with Queensland having the largest share at around 65%. Other holdings occur in South Australia, the Northern Territory, New South Wales and Western Australia.

Based on USGS data for other countries, Australia has the world's largest EDR of zinc (24%) and lead (30%), and the second largest EDR of silver (17%).

Mine production of zinc, lead and silver in 2007 was 1.51 Mt, 0.64 Mt and 1.88 Mt respectively. Compared to 2006, production in 2007 increased by 152 kt or 11% for zinc and by 151 tonnes or 9% for silver, but was down by 27 kt or 4% for lead. The majority of production was from Queensland which contributed 879 kt or 58% to national zinc production for 2007, along with 460 kt or 72% of lead and 1.5 kt or 81% of silver. The Century zinc

## 18.27 LOCATIONS OF OIL AND GAS PRODUCTION AND PIPELINES–2009



mine which is located approximately 250 kilometres north of Mt Isa, close to the Gulf of Carpentaria in north west Queensland ranks second globally in zinc production. The Cannington mine, also located in north west Queensland, is the world's largest and lowest cost single mine producer of both silver and lead and a significant producer of zinc.

In terms of world mine production of silver in 2007, Australia ranked second for lead and zinc after China and fifth for silver after Peru, Mexico, China and Chile.

### Oil and gas

Map 18.27 shows significant oil and gas production, locations, oil and gas pipelines and oil refineries.

### Crude oil and condensate

In 2007–08 production of total crude oil and condensate from the North West Shelf (off Western Australia) and the Gippsland Basin (Victoria) accounted for 39% and 92% respectively of total Australian crude oil and condensate production. The North West Shelf was the major producer of condensate during 2007–08 with 80% of total Australian production sourced from that region.

### Liquefied natural gas (LNG)

Australia is a major exporter of LNG with contracts currently in place to supply gas to Japan, China and South Korea. Australian export of LNG in 2007–08 was 15 Mt, a fall of 3% over the previous year. Export earnings from LNG in 2007–08 were \$6b, an increase of \$0.6b on 2007–08.

**Liquefied petroleum gas (LPG)**

LPG is a valuable co-product of oil and gas production and petroleum refining. The major constituents of LPG are propane and iso- and normal-butane, which are gaseous at normal temperatures and pressures, and are easily liquefied at moderate pressures or reduced temperatures. Operations involving LPG are expensive in relation to other liquid fuels because

LPG has to be refrigerated or pressurised when transported and stored. LPG is an alternative transport fuel for high mileage vehicles in urban areas, as well as a petrochemical feedstock and domestic fuel.

In 2007–08 the major producers were the Gippsland Basin and the North West Shelf, accounting for 47% and 38% of total production respectively.

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## ENERGY

Energy is a vital input to all sectors of the economy. As well as supplying the power on which industry and households depend, the production and supply of energy provides employment, investment and export opportunities, all of which contribute substantially to the welfare and standard of living of Australians.

Energy sources are divided into two groups – renewable (energy sources for which the supply is essentially inexhaustible) and non-renewable (energy sources with a finite supply). Renewable energy sources include solar, wind, hydro-electricity, geothermal and biomass. However, most of Australia's energy comes from non-renewable fossil fuel sources, such as oil, natural gas, coal and uranium.

Australia's energy resources are outlined in the initial section of this chapter. Subsequent sections describe the supply and use of energy in Australia, the production of primary energy and international trade in energy products, and provide an analysis of energy use.

This chapter includes the article *Energy in Australia* which provides analysis of electricity and gas activity in Australia, and statistics on the supply and use of energy products, the energy intensity of selected Australian industries, and energy resource stocks.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Resources

Australia has large identified resources of fossil fuels and uranium. It is ranked in the top six countries in the world for economic demonstrated resources (EDR) of black and brown coal, and has the world's largest EDR of uranium. Australia also has significant reserves of natural gas and crude oil. For a more detailed outline on Australia's energy and mineral resources, see the *Mining* chapter.

Australia has substantial resources of high quality black coal. At June 2009, the EDR of black coal totalled 1,103,751 petajoules (PJ), with most of these resources located in New South Wales and Queensland. Small but locally important black coal resources occur in Western Australia, South Australia and Tasmania. Brown coal occurs mainly in Victoria with other deposits in Western Australia, South Australia and Tasmania.

Map 19.1 shows the extent of access to gas resources and major transmission pipelines in Australia. At June 2009, the EDR of natural gas totalled 133,940 PJ (table 19.2), with the Carnarvon Basin accounting for over 50% of total reserves. The total length of Australia's natural gas transmission pipeline system has increased from 9,000 kilometres (km) in 1989 to almost 26,000km in 2007. The natural gas distribution network reaches 3.9 million customers.

In the period 1999–2009 the EDR of black coal, brown coal, crude oil and liquefied petroleum gas (LPG) each decreased, while the EDR of natural gas and uranium each rose (table 19.2).

The net present value (NPV) of an energy resource is the expected value of the resource based on current market value, with some modifications based on depletion and economic forces. At June 2009, the NPV of Australia's

**19.1 GAS RESERVES AND PIPELINES—JANUARY 2009**



## 19.2 ECONOMIC DEMONSTRATED RESOURCES OF PRIMARY ENERGY PRODUCTS—30 June

Fuel			Change from 1999 to 2009
	1999	2009	
	PJ	PJ	%
Black coal	1 239 750	1 103 751	-11.0
Brown coal	365 690	361 810	-1.1
Crude oil	7 548	7 002	-7.2
Condensate	9 750	12 690	30.2
LPG	6 943	4 073	-41.3
Natural gas	82 240	133 940	62.9
Uranium	287 875	505 526	75.6
<b>Total</b>	<b>1 999 796</b>	<b>2 128 791</b>	<b>6.5</b>

Source: Australian System of National Accounts, 2008–09 (5204.0).

## 19.3 NET PRESENT VALUE OF PRIMARY ENERGY RESOURCES—30 June

Fuel			Change from 1999 to 2009
	1999	2009	
	\$m	\$m	%
Black coal	31 196.3	111 416.4	257.1
Brown coal	652.6	1 642.5	151.7
Crude oil	11 464.8	51 071.3	345.5
Condensate	7 413.2	41 293.1	457.0
LPG(a)	3 710.7	18 574.3	400.6
Natural gas	56 484.6	99 453.2	76.1
Uranium	2 103.5	2 908.7	38.3
<b>Total</b>	<b>113 025.6</b>	<b>326 359.5</b>	<b>188.7</b>

(a) Naturally occurring.

Source: Australian System of National Accounts, 2008–09 (5204.0).

primary energy resources was \$326 billion (table 19.3). The energy resources with the highest NPV were black coal and natural gas, accounting for 34% and 30% of the total NPV of energy resources respectively. In the period 1999–2009, the value

of energy resources in Australia increased from \$113b to \$326b (up by 189%).

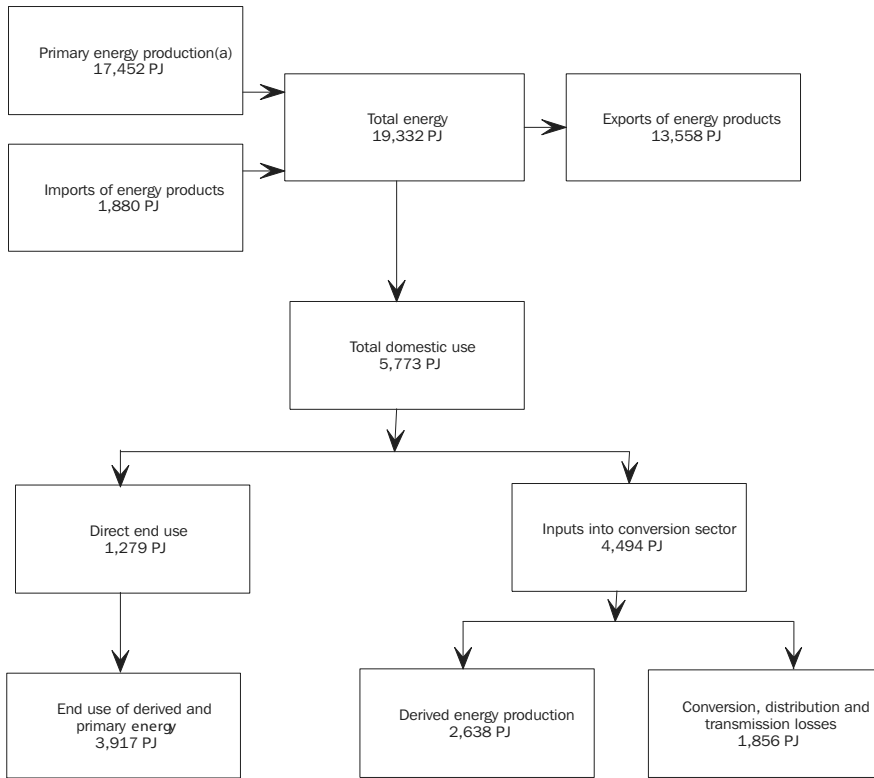
## Supply and use

An overview of the supply and use of energy in Australia in 2007–08 is shown in diagram 19.4. Australia's total energy supply is derived from primary energy production plus imports of primary energy. In 2007–08 Australia produced 17,452 PJ of primary energy products (including stock changes and statistical differences) and imported 1,880 PJ of primary energy products, mainly crude oil.

Australia's primary energy products can be exported, converted into other (derived) energy products used by Australian households and industry, or stockpiled for future consumption. Most of the energy produced in Australia in 2007–08 was exported (13,559 PJ), the bulk of which was black coal (7,183 PJ) and uranium (4,765 PJ). More information on imports and exports of Australia's energy is provided in the section *International trade in energy products* of this chapter.

In 2007–08, 5,773 PJ of energy was available for domestic use, of which 4,494 PJ of primary energy was transformed into 2,638 PJ of derived energy. Losses from the production of derived energy, through the conversion process, distribution and transmission, accounted for 1,856 PJ of energy use. Australia's end users of energy, comprising households and industry (excluding the conversion sectors), used 3,917 PJ of energy, approximately one-fifth of the total energy supply.

## 19.4 ENERGY SUPPLY AND USE—2007–08



(a) Includes stock changes and statistical differences of 92 PJ.

Source: Australian Bureau of Agriculture and Resource Economics, 'Australian Energy Statistics—Australian Energy Update', 2009.

## Production

In 2007–08 Australia's total primary energy production was estimated at 17,452 PJ (table 19.5) of which black coal accounted for half (50%), followed by uranium (27%), natural gas (11%) and crude oil (5%). Renewable energy production (including wood, bagasse, biofuel, hydro-electricity and solar thermal energy) accounted for only 2% (290 PJ) of total production in 2007–08.

In the period 2002–03 to 2007–08, Australia's total energy production increased by 2,089 PJ (14%). This was due to increased production of non-renewable energy sources – black coal (up 1,391 PJ), uranium (up 437 PJ), and natural gas (up 388 PJ). Only the production of crude oil significantly decreased over the period 2002–03

to 2007–08 (down 279 PJ). In the same period, total renewable energy production increased by 9% – from 266 PJ in 2002–03 to 290 PJ in 2007–08.

Graphs 19.6 and 19.7 show longer-term trends in the production of non-renewable and renewable energy fuels. Over the period 1977–78 to 2007–08 the production of non-renewable fuels has shown an upward trend, increasing from 3,733 PJ in 1977–78 to 17,070 PJ in 2007–08 (up 357%). However, there has been relatively little growth in the production of renewable energy fuels, which only increased from 202 PJ in 1977–78 to 290 PJ in 2007–08 (up 44%).

## 19.5 PRODUCTION OF ENERGY

Fuel	Change from 2002-03 to 2007-08		
	2002-03 PJ	2007-08 PJ	%
Black coal	7 331	8 722	19.0
Brown coal	654	709	8.4
Crude oil and ORF(a)	1 233	954	-22.6
LPG(b)	124	105	-15.2
Natural gas	1 444	1 833	26.9
Uranium	4 311	4 747	10.1
Renewables(c)	266	290	8.9
Stock changes and statistical differences(d)	—	92	—
<b>Total</b>	<b>15 363</b>	<b>17 452</b>	<b>13.6</b>

— nil or rounded to zero (including null cells)

(a) Other refinery feedstock.

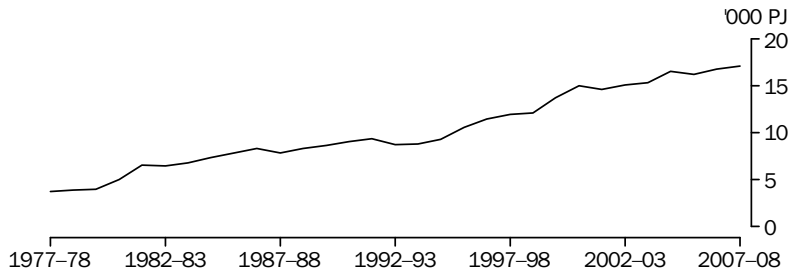
(b) Naturally occurring.

(c) Includes wood, woodwaste, bagasse, biofuels, wind, hydroelectricity and solar.

(d) Includes a statistical difference adjustment and previously unreported production.

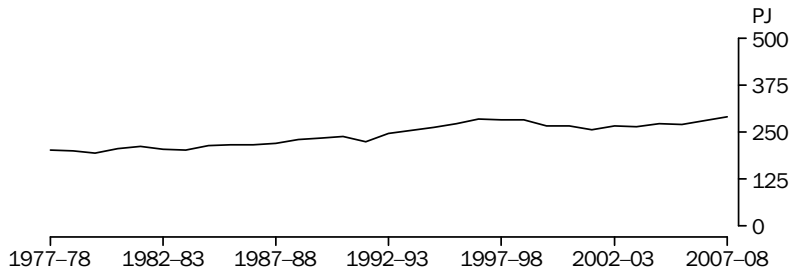
Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics – Australian Energy Update', 2009, Table A & J.

## 19.6 PRODUCTION OF NON-RENEWABLE FUELS



Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics – Australian Energy Update', 2009, Table J.

## 19.7 PRODUCTION OF RENEWABLE FUELS



Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics – Australian Energy Update', 2009, Table J.

## International trade in energy products

In 2007–08 Australia exported a total of 13,559 PJ of energy products, comprising 13,412 PJ of primary energy products and 147 PJ of derived energy products (table 19.8). In terms of energy

content, the largest contributors were black coal (53% of total energy exports) and uranium (35%), followed by liquefied natural gas (LNG) (6%) and crude oil (4%). Total energy exports increased by 15% from 2002–03 to 2007–08 with LNG up 88% and black coal up 22%.

### 19.8 ENERGY PRODUCTS, Volume of exports and imports

	EXPORTS			IMPORTS		
	2002–03	2007–08	Change	2002–03	2007–08	Change
			from 2002–03 to 2007–08			from 2002–03 to 2007–08
PJ	PJ	%	PJ	PJ	%	
<b>Primary energy products</b>						
Black coal	5 908	7 183	21.6	—	—	—
Crude oil and ORF(a)	779	594	-23.7	1 086	1 019	-6.2
LPG	82	67	-19.0	8	25	222.1
LNG	426	802	88.4	23	202	798.7
Uranium	4 509	4 765	5.7	—	—	—
<b>Total</b>	<b>11 705</b>	<b>13 412</b>	<b>14.6</b>	<b>1 117</b>	<b>1 246</b>	<b>11.6</b>
<b>Derived energy products</b>						
Automotive gasoline	36	22	-40.6	57	121	111.2
Aviation gasoline	2	3	88.2	2	—	-100.0
Aviation turbine fuel	24	75	217.3	16	68	329.7
ADO and IDF(b)	41	18	-56.2	63	288	359.1
Fuel oil and kerosene	17	20	21.7	25	66	164.1
Other petroleum products(c)	9	9	—	13	91	613.4
Briquettes	—	—	—	—	—	—
Coke	7	—	-100.0	—	—	—
<b>Total</b>	<b>135</b>	<b>147</b>	<b>8.9</b>	<b>176</b>	<b>634</b>	<b>260.8</b>
<b>Total</b>	<b>11 839</b>	<b>13 559</b>	<b>14.5</b>	<b>1 292</b>	<b>1 880</b>	<b>45.5</b>

— nil or rounded to zero (including null cells)

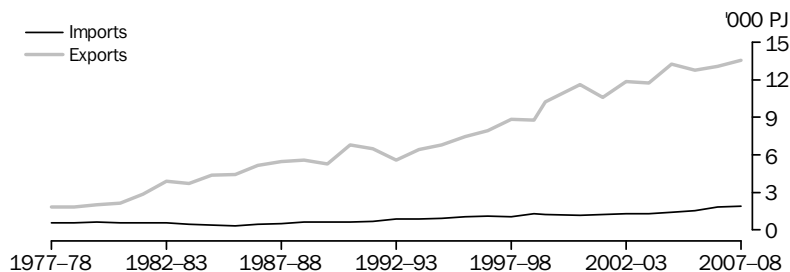
(a) Other refinery feedstock (ORF).

(b) Automotive diesel oil (ADO) and industrial diesel fuel (IDF).

(c) Also includes lubricants and greases, bitumen and other bituminous products, solvents, waste oils and diesel.

Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics – Australian Energy Update', 2009, Table J.

### 19.9 EXPORTS AND IMPORTS OF ENERGY PRODUCTS



Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics – Australian Energy Update', 2009, Table J.

## 19.10 ENERGY PRODUCTS, Value of exports and imports

	EXPORTS			IMPORTS		
	2002–03	2007–08	Change from 2002–03 to 2007–08	2002–03	2007–08	Change from 2002–03 to 2007–08
	\$m	\$m	%	\$m	\$m	%
Black coal(a)	11 941	24 415	104.5	8	6	-25.0
Crude oil and ORF(b)	5 882	9 599	63.2	7 813	16 766	114.6
LPG	853	1 181	38.5	78	436	459.0
LNG	2 607	5 855	124.6	—	724	—
Uranium oxide	429	888	107.0	—	—	—
Refinery products	2 469	3 623	46.7	2 688	12 610	369.1
<b>Total of energy products</b>	<b>24 181</b>	<b>45 561</b>	<b>88.4</b>	<b>10 587</b>	<b>30 542</b>	<b>188.5</b>
Total merchandise trade	115 480	180 857	56.6	133 128	202 308	52.0

— nil or rounded to zero (including null cells)

(a) Coking plus steaming.

(b) Other refinery feedstock (ORF).

Source: International Trade in Goods and Services, Australia, July 2009 (5368.0); Australian Bureau of Agricultural and Resource Economics, 'Australian Mineral Statistics', 2009.

By contrast, total imports of energy products were relatively small (1,880 PJ in 2007–08) (table 19.8). Crude oil made up 54% of total energy imports in 2007–08. Imports of primary energy products have increased from 1,117 PJ in 2002–03 to 1,246 PJ in 2007–08 (up 12%). Imports of derived energy products (mainly petroleum-based products), have increased substantially from 176 PJ in 2002–03 to 634 PJ in 2007–08 (up 261%).

Graph 19.9 shows the comparison between energy exports and imports from 1997–98 to 2007–08.

Table 19.10 shows the value and contribution of energy products to Australia's trade. In 2007–08 the export of energy products contributed \$45.6b (25%) towards Australia's total merchandise export earnings. Black coal accounted for 54% of the total value of energy exports in 2007–08 (\$24.4b), followed by crude oil (21%) and LNG (13%). Imports of energy products (mainly crude oil) accounted for \$30.5b (15%) of the total value of Australia's imports in 2007–08. Over the period 2002–03 to 2007–08 the value of crude oil imports increased by \$9.0b (up 115%).

While the volume (in PJ) of energy exports has increased by 15% in the period 2002–03 to 2007–08 (table 19.8), the value of energy exports over the same period increased by 88%, partly due to price increases for energy products in the period. Although uranium accounted for over a

third of all exports by energy volume, the value of uranium exports contributed only 2% of the total value of energy exports in 2007–08.

## Energy use

### Total energy use

In 2007–08 Australia's total domestic energy use was 5,773 PJ, less than one-third of the total energy it produced (17,452 PJ) (diagram 19.4). Over the period 1977–78 to 2007–08 there was a 93% increase in Australia's total energy use (graph 19.11).

### Energy conversion and supply losses

The energy conversion sectors accounted for approximately three-quarters (4,494 PJ) of total domestic energy use in 2007–08 (diagram 19.4). The energy conversion sectors (including electricity generators, petroleum refiners, operators of coke ovens and blast furnaces, and gas manufacturers) transform primary energy products into more useful, higher value-added derived energy products. For example, petroleum refiners transform crude oil into petroleum products such as petrol and diesel.

The electricity generation and petroleum refining sectors are the two main users of energy. In 2007–08 these two conversion sectors used 2,514 PJ and 1,490 PJ respectively (table 19.12). Since

2002–03, energy use by the electricity generation sector has increased by 13% and energy use by the petroleum refining sector has declined by 11%.

### Derived energy products

In 2007–08 Australia produced 2,638 PJ of derived energy products (diagram 19.4). These products included thermal electricity (868 PJ), automotive gasoline (584 PJ), diesel (470 PJ), aviation turbine fuel (191 PJ) and coal products (180 PJ) (table 19.13).

The production of derived energy remained essentially the same in 2007–08 as it was in 2002–03 (2,638 PJ in 2007–08 compared with 2,643 PJ in 2002–03). While the production of thermal electricity increased from 778 PJ to 868 PJ (up 12%) in this period, there was a fall in the production of most petroleum products – automotive gasoline (down 5%), fuel oil (down 32%), diesel (down 9%) and briquettes (down 44%). Aviation turbine fuel increased slightly (up 1%) along with the other coal products – coke up 1% and coal by-products up 1%.

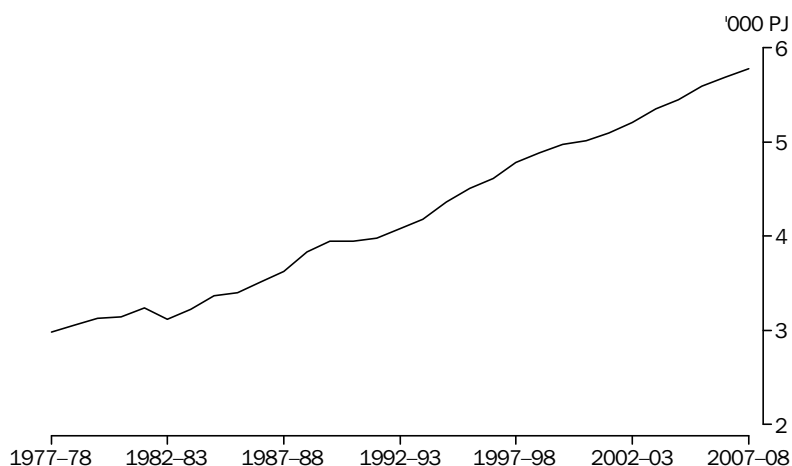
Significant energy losses are involved in the process of transforming primary energy resources into derived energy products and in the delivery of derived energy products to the market. In 2007–08, almost one-third (1,856 PJ) of the total energy available for domestic use was lost through the conversion processes and through distribution and transmission systems (diagram 19.4).

### Energy end-use by sector

In 2007–08 Australia's end-users of energy, comprising households and industries (excluding the conversion sectors), used 3,917 PJ of energy, an increase of 13% since 2002–03 (table 19.14).

The transport sector was the largest end-user of energy, using 1,362 PJ in 2007–08. In 2007–08 road transport accounted for 75% (1,028 PJ) of the transport sector's energy use, with the remaining contributors being air transport (226 PJ), water transport (71 PJ) and rail transport (38 PJ). The manufacturing sector was the second highest user of energy (1,219 PJ) in 2007–08. Together with the transport sector, these two sectors account for 66% of total energy end-use.

**19.11 TOTAL ENERGY USE**



Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics - Australian Energy Update', 2009, Table F1.

### 19.12 ENERGY USED IN CONVERSION, By sector

	Change from 2002-03 to		
	2002-03	2007-08	2007-08
	PJ	PJ	%
Coke oven operation	127.2	137.4	8.0
Briquetting	13.9	6.3	-54.7
Petroleum refining	1 677.5	1 489.5	-11.2
Electricity generation	2 235.2	2 514.2	12.5
Gas manufacturing	2.0	0.6	-70.0
Other conversion(a)	72.3	82.6	14.2
Fuel used in conversion	263.2	263.4	0.1
<b>Total</b>	<b>4 391.3</b>	<b>4 494.0</b>	<b>2.3</b>

(a) Includes return streams to refineries from the petrochemical industry; consumption of coke in blast furnaces; blast furnace gas manufacture; electricity produced through cogeneration; and brown coal tar produced in tar manufacture.

Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics – Australian Energy Update', 2004 and 2009, Table A.

### 19.13 PRODUCTION OF DERIVED ENERGY

	Change from 2002-03 to		
	2002-03	2007-08	2007-08
	PJ	PJ	%
Coal products			
Coke	96.9	98.2	1.3
Coal by-products	78.6	79.2	0.8
Briquettes	5.4	3.0	-44.4
Petroleum products			
Automotive gasoline	613.1	584.1	-4.7
Aviation turbine fuel	188.6	190.7	1.1
Fuel oil	57.7	39.2	-32.1
Diesel(a)	515.2	470.2	-8.7
Thermal electricity	778.3	868.0	11.5
Other	309.5	305.6	-1.3
<b>Total</b>	<b>2 643.3</b>	<b>2 638.2</b>	<b>-0.2</b>

(a) Includes automotive diesel oil and industrial and marine diesel fuel.

Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics – Australian Energy Update', 2009, Table A, C & F.

### 19.14 ENERGY END-USE, By sector

	Change from 2002-03 to		
	2002-03	2007-08	2007-08
	PJ	PJ	%
Agriculture	105.7	92.6	-12.4
Mining	295.4	449.7	52.2
Manufacturing			
Iron and steel	134.3	117.4	-12.6
Chemical	184.9	202.3	9.4
Other industry	802.9	899.1	12.0
Total	1 122.1	1 218.8	8.6
Construction	27.7	26.4	-4.7
Transport(a)			
Road transport	964.6	1 027.5	6.5
Rail transport	29.7	37.5	26.3
Air transport	159.6	226.3	41.8
Water transport	52.2	70.6	35.2
Total	1 206.1	1 361.9	12.9
Commercial(b)	235.5	278.9	18.4
Residential(c)	412.5	425.7	3.2
Other(d)	60.1	62.9	4.7
<b>Total</b>	<b>3 467.3</b>	<b>3 916.9</b>	<b>13.0</b>

(a) Includes all transport use, including household motor vehicle use.

(b) Includes wholesale and retail trade, communications, finance and insurance, property and business services, government administration and defence, education, health and community services, cultural and recreational services, and person

(c) Transport use by households is included in transport.

(d) Includes lubricants and greases, bitumen and solvents, as well as energy consumption in the gas production and distribution industries.

Source: Australian Bureau of Agricultural and Resource Economics, 'Australian Energy Statistics Australian Energy Update' 2009, Table A.



## Energy in Australia

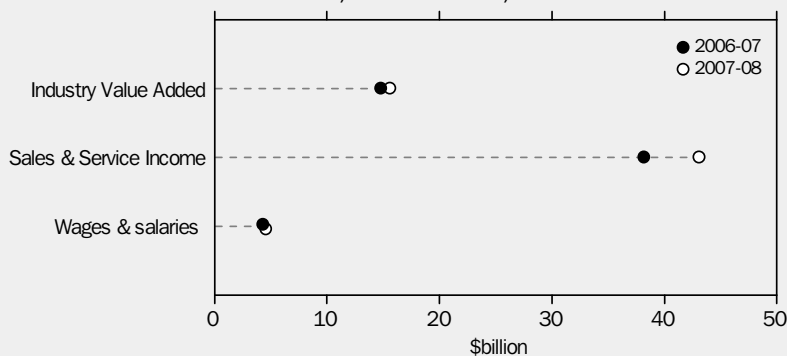
In response to ongoing demand for information on the energy sector and energy products within Australia's economy, during 2008–09 the Australian Bureau of Statistics released an analysis of electricity and gas activity in Australia, and statistics on the supply and use of energy products, the energy intensity of selected Australian industries, and energy resource stocks. This article provides highlights from these analyses.

### Electricity and gas activity in Australia

#### Electricity supply chain

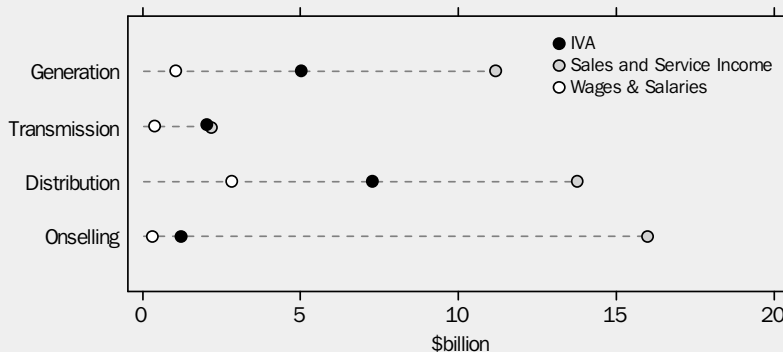
The supply of electricity begins with generation in power stations. Electricity generators are usually located near fuel sources, such as coalmines, natural gas pipelines and hydro-electric water reservoirs. Electricity is transmitted via high voltage transmission lines from generators to the low voltage distribution network. Distribution networks deliver electricity to consumers in cities, towns and regional communities.

**19.15 ELECTRICITY SUPPLY, KEY DATA ITEMS, 2006–07 AND 2007–08**



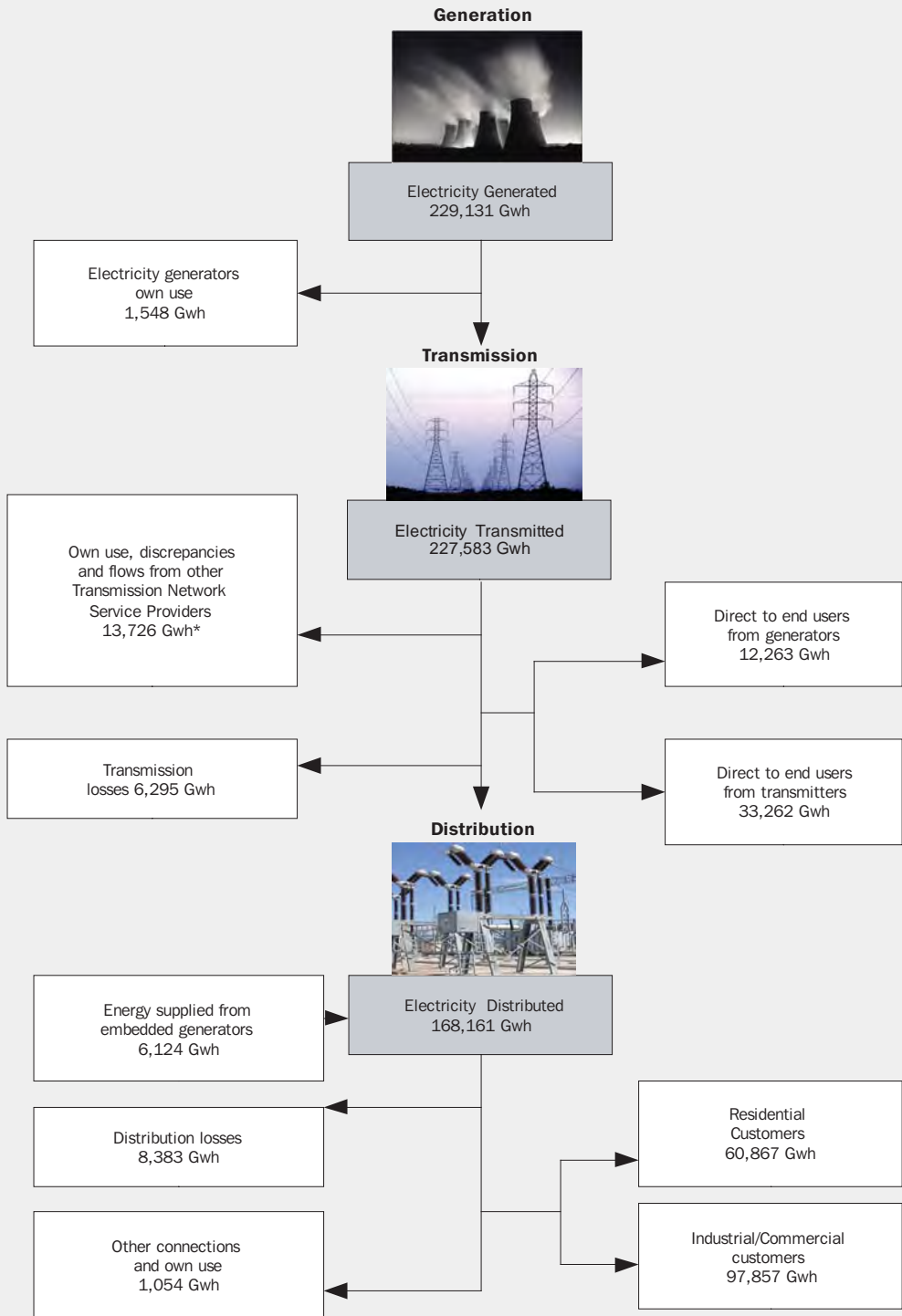
Source: *Alternative view of electricity and gas supply activity, Australia, 2006–07 to 2007–08 (4647.0).*

**19.16 ELECTRICITY SUPPLY, BY ACTIVITY, KEY DATA ITEMS, 2007–08**



Source: *Alternative view of electricity and gas supply activity, Australia, 2006–07 to 2007–08 (4647.0).*

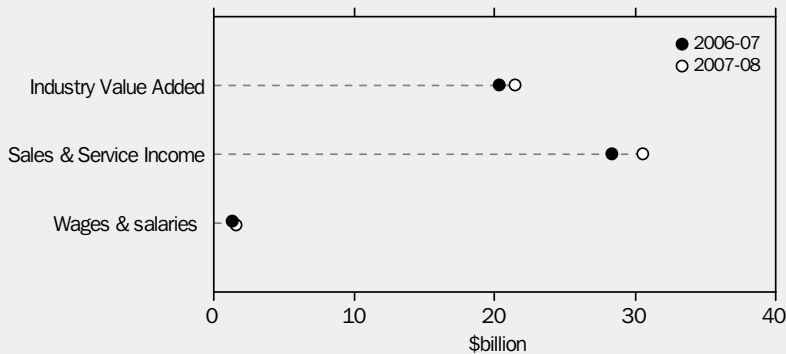
**19.17 ELECTRICITY SUPPLY CHAIN PHYSICAL FLOW OF ELECTRICITY GIGAWATT HOURS (GWH), 2007-08**



Note values indicated by \* represent derived estimates

Source: Alternative view of electricity and gas supply activity, Australia, 2006-07 to 2007-08 (4647.0).

### 19.18 GAS SUPPLY, KEY DATA ITEMS, 2006-07 AND 2007-08



Source: *Alternative view of electricity and gas supply activity, Australia, 2006-07 to 2007-08 (4647.0).*

The supply chain is completed by retailers who buy wholesale electricity and package it with transmission and distribution services for sale to residential, commercial and industrial customers.

There was an increase in the value of all three key financial data items for businesses engaged in electricity supply activity between 2006-07 and 2007-08 (graph 19.15). Industry value added (IVA) increased from \$14.8b in 2006-07 to \$15.6b in 2007-08, sales and service income increased from \$38.2b in 2006-07 to \$43.1b in 2007-08, and wages and salaries increased from \$4.3b in 2006-07 to \$4.6b in 2007-08.

Electricity distribution had the highest IVA for electricity supply activity in 2007-08, at \$7.3b (graph 19.16), followed by electricity generation at \$5.0b. Electricity on-selling had the highest sales and service income at \$16.0b, followed by electricity distribution at \$13.8b and electricity generation at \$11.2b. Electricity distribution had the highest wages and salaries at \$2.8b, followed by electricity generation at \$1.1b.

Diagram 19.17 shows the physical flow of electricity through the electricity supply chain in 2007-08.

#### Natural gas supply chain

The gas supply chain begins with extracting gas from wells. The extracted gas is processed to separate the methane from the liquids and other gases that may be present, and to remove any impurities. The gas extracted from a well can be

used on site as a fuel for electricity generation or for other purposes.

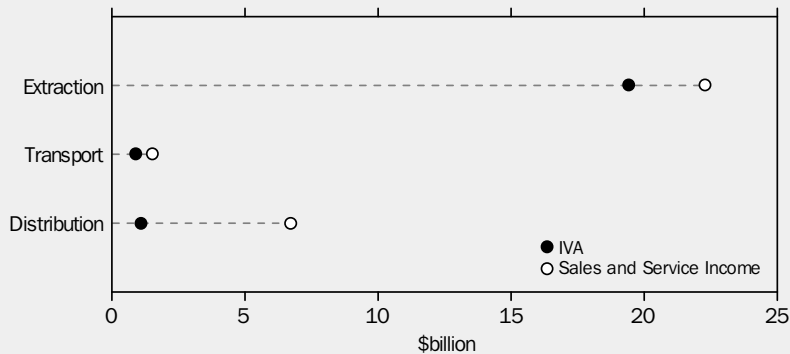
High pressure transmission pipelines are used to transport gas from the source of extraction over long distances from production fields to major demand centres. Distribution pipelines deliver gas from points along the transmission pipelines to industrial customers and from gate stations to consumers in cities, towns and regional communities.

Often retailers act as intermediaries in the supply chain. They enter into contracts for wholesale gas, transmission and distribution services and package the services together for on-sale to industrial, commercial and residential consumers.

Unlike electricity, natural gas can be stored, usually in depleted gas reservoirs, or it can be converted to a liquefied form for storage in purpose-built facilities. Liquefied natural gas (LNG) is transported by ship to export markets. It is also possible to transport LNG by road or pipeline.

There was an increase in the value of all three key financial data items for businesses engaged in gas supply activity between 2006-07 and 2007-08 (diagram 19.17). IVA increased from \$20.3b in 2006-07 to \$21.4b in 2007-08, sales and service income increased from \$28.3b in 2006-07 to \$30.6b in 2007-08, and wages and salaries increased from \$1.3b in 2006-07 to \$1.6b in 2007-08.

19.19 GAS SUPPLY, BY ACTIVITY, KEY DATA ITEMS, 2007–08



Source: *Alternative view of electricity and gas supply activity, Australia, 2006–07 to 2007–08* (4647.0).

Gas extraction had clearly the highest value for gas supply activity for 2007–08 for both IVA and sales and service income (\$19.4b for IVA, and \$22.3b for sales and service income) (graph 19.18).

Diagram 19.20 shows the physical flow of gas through the gas supply chain in 2007–08.

Full details are in *Alternative View of Electricity and Gas Supply Activity, Australia* (4647.0).

## Energy accounts

### Supply and use of energy products in Australia, 2001–02 to 2006–07

Australia's total energy use increased by 15% for the period 2001–02 to 2006–07 (from 18,538 PJ to 21,363 PJ). Manufacturing, along with the electricity, gas and water industries were the largest domestic energy users in 2006–07 (around one-third each), while households made up a further one-eighth.

Over half of household energy use was on fuels such as petrol, diesel and LPG, about one quarter was on electricity, and the remainder on products such as natural gas, biomass and solar energy.

In its first attempt at presenting both physical and monetary aspects of energy use, the ABS found

that the manufacturing industry was the largest user of electricity in 2004–05 at 313 petajoules (86.9 billion kilowatt hours), with an experimental value of \$3,585m, while households used 215 petajoules (59.7 billion kilowatt hours), with an experimental value of \$7,818m. Manufacturing had the largest share of oil and gas (around 80% for both physical and monetary use, graph 19.19). Households had the largest electricity cost (about a third of total electricity cost), while only using about a fifth of total electricity use (diagram 19.20).

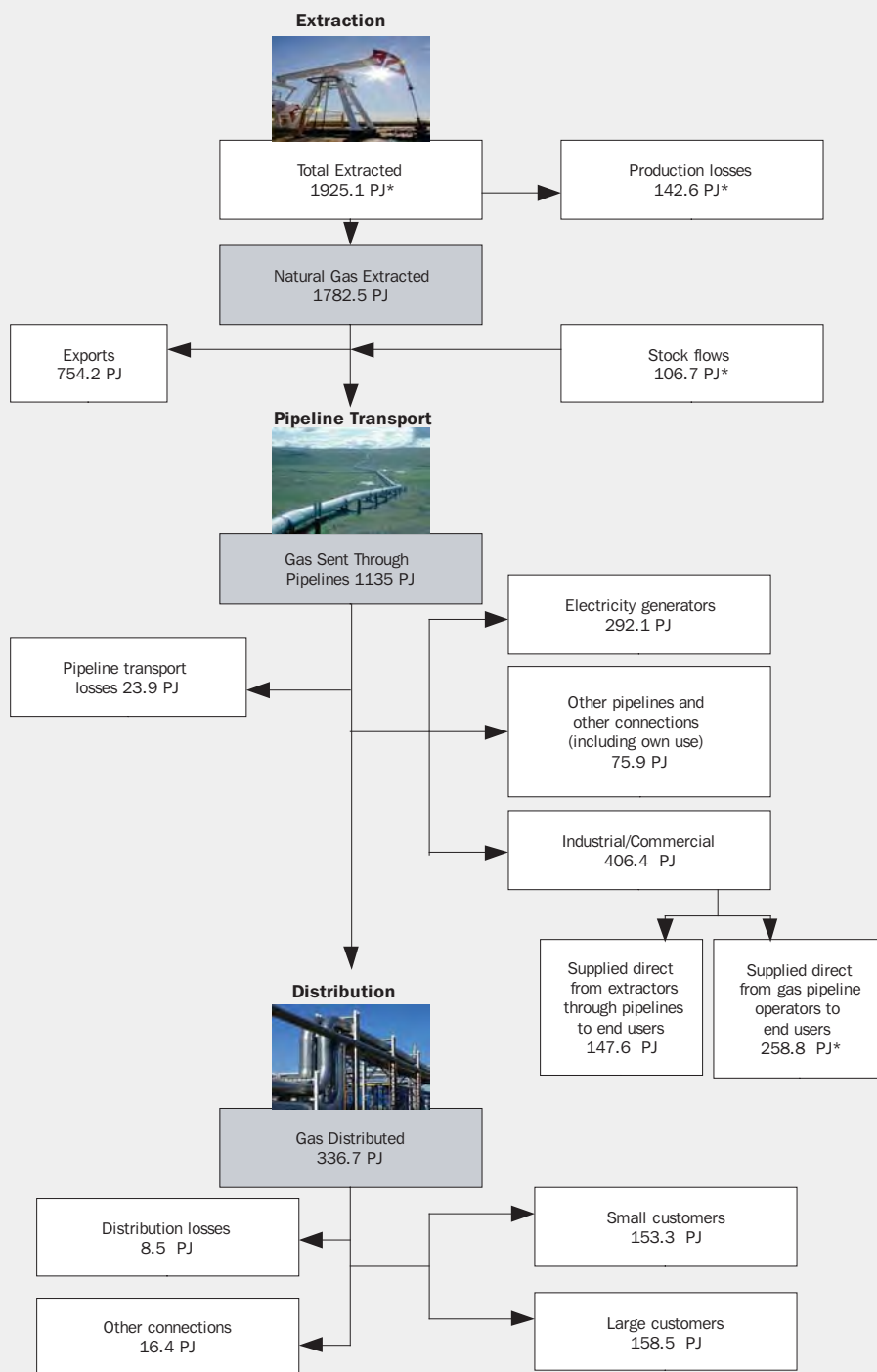
Full details are in *Energy Account, Australia* (4604.0).

### Energy intensity measures for selected Australian industries

Overall there has been a decrease in energy intensity for all industries over the last 30 years (graph 19.21). However, energy intensity in mining has doubled over the last 30 years due to a number of factors (graph 19.22). In contrast, there have been large decreases in energy intensity in other industries, such as construction (74%) and transport (50%).

Full details are in *Energy Account, Australia* (4604.0).

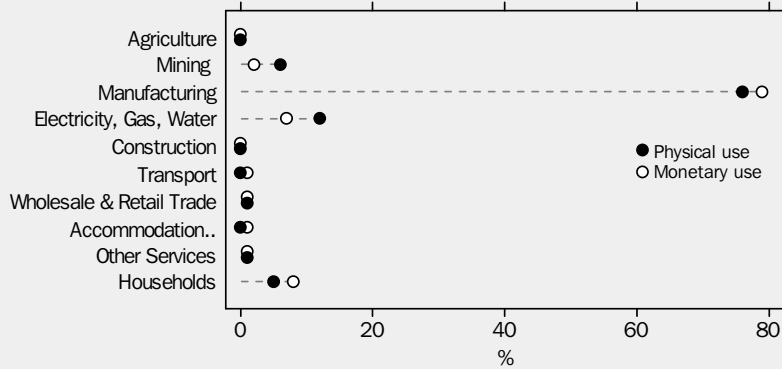
## 19.20 GAS SUPPLY CHAIN PHYSICAL FLOW OF GAS PETAJOULES (PJ), 2007–08



Note values indicated by \* represent derived estimates  
 The data excludes any gas extracted outside of Australian territory. Diagram represents an activity view of the Gas supply chain. For an industry view see ABS Australian Industry (8155.0).

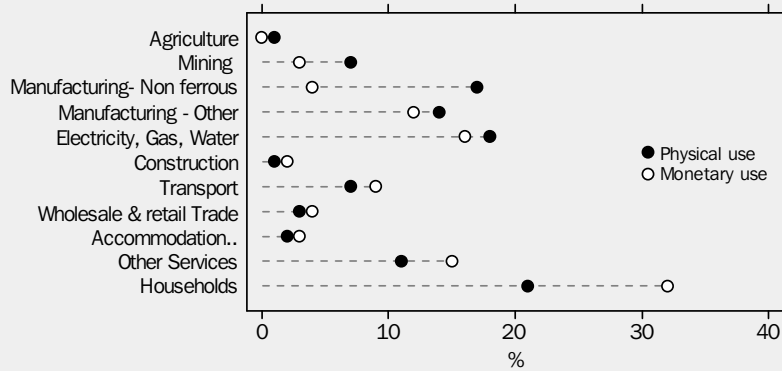
Source: *Alternative view of electricity and gas supply activity, Australia, 2006–07 to 2007–08* (4647.0).

### 19.21 DISTRIBUTION OF OIL AND GAS USE - MONETARY & PHYSICAL



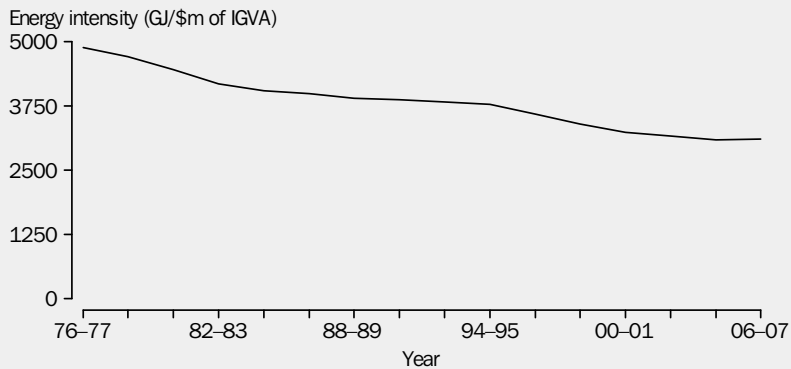
Source: Energy Account, Australia, 2006-07 (4604.0).

### 19.22 DISTRIBUTION OF ELECTRICITY USE - MONETARY & PHYSICAL



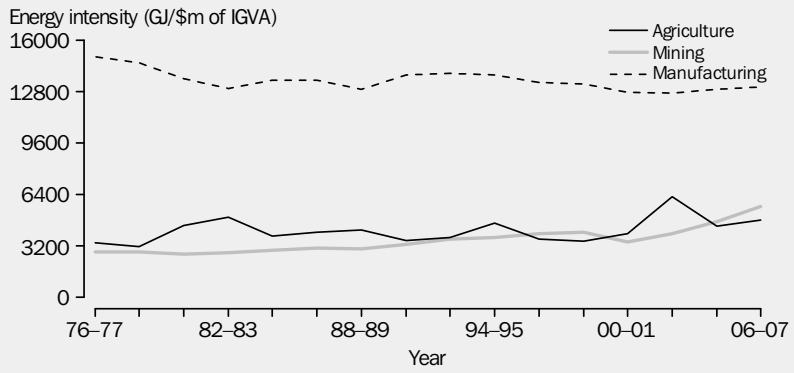
Source: Energy Account, Australia, 2006-07 (4604.0).

### 19.23 ENERGY INTENSITY, ALL INDUSTRIES



Source: Energy Account, Australia, 2006-07 (4604.0).

### 19.24 ENERGY INTENSITY: AGRICULTURE, MINING & MANUFACTURING



Source: *Energy Account, Australia, 2006-07* (4604.0).

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## MANUFACTURING

Manufacturing broadly relates to the physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machinery or by hand. Manufacturing covers a range of production techniques ranging from computer-assisted production using robots to production of fine jewellery by hand.

The Manufacturing industry contributed 10% to Australia's gross domestic product (GDP) in 2007–08. In 2008–09 the manufacturing industry employed 9% of all people employed in Australia, with males outnumbering females by a ratio of around 3 to 1. Twenty selected manufacturing commodities exported from Australia contributed 36% of the total value of all merchandise exports in 2008–09.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Manufacturing industry

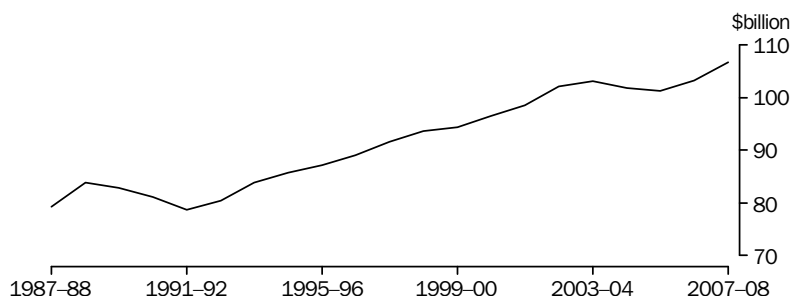
### Economic contribution

The contribution of an industry to the overall production of goods and services in an economy, gross domestic product (GDP), is measured by gross value added (GVA). Information on the relationship between industry GVA and GDP is provided in the *Industry structure and performance* chapter.

Total production of the manufacturing industry, as measured by industry GVA (in volume terms), increased between 1991–92 to 2003–04 (graph 20.1). During this period, production increased by 31%. Manufacturing production decreased between 2003–04 and 2005–06, before increasing to \$107 billion (b) in 2007–08.

Table 20.2 shows the industry GVA of the subdivisions (components) within the

**20.1 MANUFACTURING PRODUCTION(a)(b)**



(a) Industry gross value added. (b) Volume measures. Reference year is 2006–07.

Source: Australian System of National Accounts (5204.0).

**20.2 MANUFACTURING INDUSTRY(a), Gross value added(b)**

ANZSIC Subdivision		2003–04	2004–05	2005–06	2006–07	2007–08	Percentage change from 2003–04 to 2007–08
Food, beverage and tobacco manufacturing	\$m	19 635.0	19 812	19 668	19 846	19 787	0.8
Textile, clothing, footwear and leather manufacturing	\$m	4 156	3 381	3 152	3 103	2 969	-28.6
Wood and paper product manufacturing	\$m	7 274	7 331	7 044	6 875	6 591	-9.4
Printing, publishing and recorded media	\$m	10 871	10 600	10 399	10 646	10 941	0.6
Petroleum, coal, chemical and associated product manufacturing	\$m	15 528	15 528	14 895	14 703	15 025	-3.2
Non-metallic mineral product manufacturing	\$m	4 402	4 618	5 148	5 258	5 490	24.7
Metal product manufacturing	\$m	17 240	16 751	16 582	18 322	20 406	18.4
Machinery and equipment manufacturing	\$m	19 577	19 682	20 560	20 510	21 073	7.6
Other manufacturing	\$m	4 850	4 464	4 032	4 030	4 494	-7.3
Total manufacturing(c)	\$m	103 093	101 846	101 320	103 292	106 776	3.6
Contribution to GDP	%	10.8	10.4	10.0	9.9	9.8	. .

. . not applicable

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 edition.

(b) Volume measures. Reference year is 2006–07.

(c) Volume measures for years other than 2006–07 and 2007–08 are not additive.

Source: Australian System of National Accounts, 2007–08 (5204.0).

manufacturing division as defined in the *Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993* (1292.0). The contribution of the manufacturing industry to Australia's GDP between 2003–04 and 2007–08 fell from 11% to 10%.

For these periods the manufacturing industry GVA (in volume terms) rose by \$4b or 4%. The largest increase in production in the period was for non-metallic mineral products manufacturing (25%), followed by metal products manufacturing (18%).

Production for textile, clothing, footwear and leather manufacturing fell by 29%. Other industry subdivisions that recorded falls over this period were wood and paper products manufacturing (9%), other manufacturing (7%) and petroleum, coal, chemical and associated products manufacturing (3%).

Between 2006–07 and 2007–08, production increased for six of the nine manufacturing industry subdivisions. The largest increases were for other manufacturing (12%), metal products manufacturing (11%) and non-metallic mineral products manufacturing (4%). The greatest decreases were for textile, clothing, footwear and

leather manufacturing and wood and paper products manufacturing (both 4%).

## Structure and performance

The major source of statistics in this section is the annual Economic Activity Survey (EAS) of businesses, conducted by the Australian Bureau of Statistics (ABS).

Production of an industry can be measured in terms of industry value added (IVA), in much the same way as industry GVA. However, unlike industry GVA (the national accounts concept of production), IVA is not adjusted for a number of national accounting conventions, as the information to make these adjustments cannot be collected in the EAS. The advantage of IVA, however, is the availability of more detailed (component) industry and state estimates of manufacturing production.

## Summary of operations in 2007–08

In 2007–08 manufacturing businesses paid \$62b in labour costs, and generated \$396b of sales and service income and \$105b of Industry Value Added (IVA) (table 20.3).

### 20.3 MANUFACTURING INDUSTRY(a), Selected performance measures—2007–08

ANZSIC Subdivision	Labour	Sales and	Industry
	costs(b)	income(c)	value added
	\$m	\$m	\$m
Food product manufacturing	10 927	67 838	15 713
Beverage and tobacco product manufacturing	2 192	16 040	5 810
Textile, leather, clothing and footwear manufacturing	1 970	9 905	2 938
Wood product manufacturing	2 608	13 099	4 332
Pulp, paper and converted paper product manufacturing	1 775	9 904	2 853
Printing (including the reproduction of recorded media)	2 784	9 429	3 974
Petroleum and coal product manufacturing	881	37 820	3 216
Basic chemical and chemical product manufacturing	3 697	27 699	7 400
Polymer product and rubber product manufacturing	3 368	17 374	5 781
Non-metallic mineral product manufacturing	2 988	16 840	5 251
Primary metal and metal product manufacturing	5 683	65 742	15 276
Fabricated metal product manufacturing	6 695	28 605	9 593
Transport equipment manufacturing	7 042	34 939	9 516
Machinery and equipment manufacturing	7 346	32 516	10 636
Furniture and other manufacturing	1 567	8 069	2 675
<b>Total manufacturing</b>	<b>61 523</b>	<b>395 818</b>	<b>104 963</b>

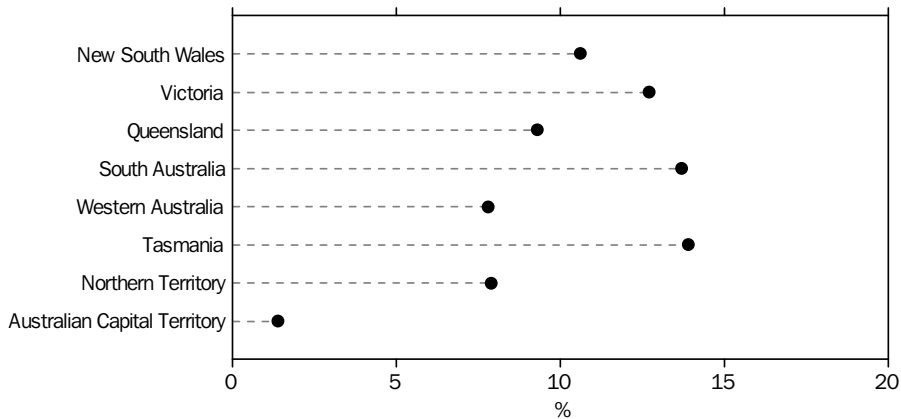
(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.

(b) Includes wages and salaries, workers compensation premiums/costs and employers contributions into superannuation. Includes capitalised wages.

(c) Includes rent, leasing and hiring income and other royalties income.

Source: Australian Industry, Australia, 2007–08 (8155.0).

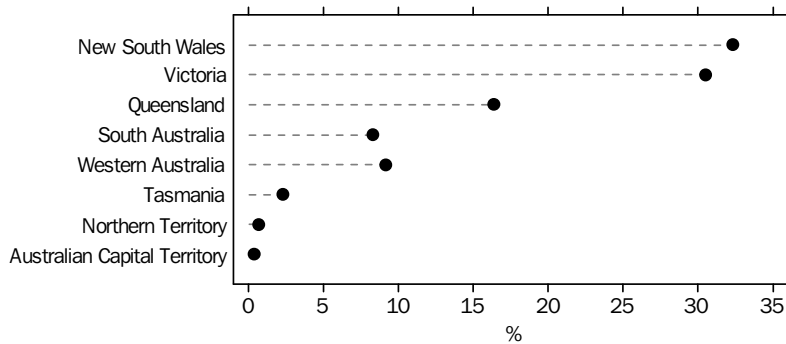
## 20.4 MANUFACTURING INDUSTRY'S CONTRIBUTION TO STATE PRODUCTION(a)—2007–08



(a) State production as measured by total factor income (in current prices).

Source: *Australian National Accounts: State Accounts (5220.0)*.

## 20.5 MANUFACTURING PRODUCTION(a)—2004–05



(a) Production is measured by industry value added.

Source: *Manufacturing Industry, Australia (8221.0)*.

Food product manufacturing was the largest contributor to total manufacturing sales and service income (\$68b or 17%), the largest contributor to total labour costs (\$11b or 18%), and also contributed the most to total manufacturing IVA (\$16b or 15%). Other industry subdivisions making major contributions were primary metal and metal product manufacturing (just under 17% of sales and service income and 15% of IVA), petroleum and coal product manufacturing (10% of sales and service income) and machinery and equipment manufacturing (10% of IVA).

### Contribution to state production

Graph 20.4 shows the manufacturing industry's contribution to state production (in current prices) for 2007–08. Tasmania and South Australia had the highest contribution to state production from manufacturing (both 14%), followed by Victoria (13%) and New South Wales (11%). The Australian Capital Territory had the lowest contribution by manufacturing in 2007–08, with 1%.

### State distribution of activity

Graph 20.5 shows the relative contributions to overall manufacturing production by states and territories in 2004–05. New South Wales and

## 20.6 MANUFACTURING INDUSTRY(a), Value added—2004–05

<i>ANZSIC Subdivision</i>	<i>NSW</i>	<i>Vic.</i>	<i>Qld</i>	<i>SA</i>	<i>WA</i>	<i>Tas.</i>	<i>NT</i>	<i>ACT</i>	<i>Aust.</i>
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	6 404.3	5 519.3	3 261.5	1 756.5	1 146.7	401.7	37.1	35.5	18 562.5
Textile, clothing, footwear and leather manufacturing	847.9	1 241.6	345.4	132.6	269.6	66.7	10.1	8.6	2 922.5
Wood and paper product manufacturing	1 813.7	1 856.2	1 112.9	741.4	415.0	506.2	10.9	27.7	6 483.9
Printing, publishing and recorded media	3 893.9	3 080.3	1 313.6	675.8	814.3	145.6	48.6	140.6	10 112.7
Petroleum, coal, chemical and associated product manufacturing	3 861.1	4 733.4	1 961.0	682.0	1 513.3	150.7	30.4	15.8	12 947.8
Non-metallic mineral product manufacturing	1 543.5	1 119.9	862.0	433.4	638.5	120.5	54.2	51.2	4 823.3
Metal product manufacturing	6 214.1	3 974.8	3 751.4	1 096.7	2 565.8	620.7	471.4	53.0	18 747.9
Machinery and equipment manufacturing	5 683.7	6 648.7	2 573.7	2 403.0	1 420.6	248.7	71.9	80.2	19 130.6
Other manufacturing	1 324.0	1 169.9	778.2	323.6	414.4	69.9	24.1	28.1	4 132.2
<b>Total manufacturing</b>	<b>31 586.4</b>	<b>29 344.1</b>	<b>15 959.7</b>	<b>8 245.1</b>	<b>9 198.0</b>	<b>2 330.6</b>	<b>758.7</b>	<b>440.8</b>	<b>97 863.4</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 edition.  
Source: Australian Industry, Australia, 2004–05 (8155.0).

Victoria continued to be the largest contributors to manufacturing production, accounting for 32% (\$32b) and 31% (\$30b) respectively.

Table 20.6 shows the production by manufacturing industry subdivision by state and territory. In 2004–05, New South Wales contributed 39% of the total IVA of the printing, publishing and recorded media industry (\$10b) and between 29% and 35% of the total IVA of the remaining manufacturing industries. Victoria contributed 42% of the total IVA of the textile, clothing, footwear and leather manufacturing industry (\$3b), 37% of the total IVA of the petroleum, coal, chemical and associated product manufacturing industry (\$13b), and between 21% and 35% of the total IVA of the remaining manufacturing industries.

Food, beverage and tobacco manufacturing, and metal manufacturing were the largest manufacturing industries in New South Wales accounting for 20% each of total manufacturing IVA for that state. In Victoria, machinery and equipment manufacturing and food, beverage and tobacco manufacturing were the largest with 23% and 19% respectively.

Queensland contributed 20% of the total IVA for metal product manufacturing which was also the largest manufacturing industry (24%) in this state.

The contributions of South Australia and Western Australia to total manufacturing IVA were \$8b and \$9b respectively, although the structure of the manufacturing industry was very different. Machinery and equipment manufacturing was the largest manufacturing industry in South Australia, accounting for 29% of state production and 13% of the total IVA for the industry. South Australia also contributed between 5% and 11% of the total IVA of the remaining manufacturing industries. Western Australia contributed 14% of total IVA for metal product manufacturing and 13% of total IVA for non-metallic mineral product manufacturing. Metal product manufacturing was the largest manufacturing industry in the state, accounting for 28% of state production.

Manufacturing was not as significant for the remaining states and territories. Tasmania, which accounted for \$2b of total manufacturing IVA, contributed 8% of total IVA for wood and paper product manufacturing. The total production for the Northern Territory and the Australian Capital Territory were \$0.8b and \$0.4b respectively.

### Employment and earnings

The number of male and female workers in each manufacturing industry subdivision for 2007–08 and 2008–09 is provided in table 20.7. The table includes directors who are not paid a salary and

## 20.7 MANUFACTURING INDUSTRY(a), Employment(b)

	2007–08			2008–09		
	Males	Females	Persons	Males	Females	Persons
<i>ANZSIC Subdivision</i>	'000	'000	'000	'000	'000	'000
Food product manufacturing	120.2	81.4	201.6	114.9	78.6	193.5
Beverage and tobacco product manufacturing	19.1	7.7	26.8	20.6	9.4	30.0
Textile, leather, clothing, and footwear manufacturing	20.8	28.7	49.5	16.8	31.1	47.9
Wood product manufacturing	42.2	7.1	49.3	39.3	6.4	45.7
Pulp, paper and converted paper product manufacturing	15.2	4.7	19.9	17.0	3.9	20.9
Printing (including the reproduction of recorded media)	35.9	17.7	53.6	35.2	15.6	50.8
Petroleum and coal product manufacturing	7.1	1.0	8.1	5.5	2.0	7.5
Basic chemical and chemical product manufacturing	23.9	20.0	43.8	26.2	19.2	45.5
Polymer product and rubber product manufacturing	33.9	11.9	45.7	28.9	7.8	36.7
Non-metallic mineral product manufacturing	36.3	5.6	42.0	34.4	4.9	39.3
Primary metal and metal product manufacturing	74.9	8.0	82.9	73.1	10.8	83.9
Fabricated metal product manufacturing	65.6	9.4	75.0	61.0	10.2	71.2
Transport equipment manufacturing	88.4	14.4	102.8	78.6	12.9	91.5
Machinery and equipment manufacturing	89.6	25.0	114.7	94.1	23.9	118.0
Furniture and other manufacturing	48.4	11.6	60.0	49.3	13.5	62.8
Manufacturing, nfd(c)	60.0	20.4	80.4	54.1	17.4	71.5
<b>Total manufacturing</b>	<b>781.5</b>	<b>274.7</b>	<b>1 056.2</b>	<b>749.0</b>	<b>267.7</b>	<b>1 016.7</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.

(b) Annual average of quarterly data.

(c) Not further defined. Insufficient detail collected from survey respondent to allocate them to a specific industry code.

Source: Labour Force Australia, Detailed – Quarterly (6291.0.55.003).

self-employed people (such as contractors, owner/drivers, consultants and people paid solely by commission without a retainer).

In 2008–09 the manufacturing industry employed 9% (1,016,700) of all people employed in Australia (10,766,600). Males outnumbered

females by a ratio of around 3 to 1 (74% males and 26% females).

The largest employers of males in 2008–09 were food product manufacturing (114,900) and machinery and equipment manufacturing (94,100). The largest employers of females were food product manufacturing (78,600) and textile,

## 20.8 MANUFACTURING INDUSTRY, Average weekly earnings(a)(b)—May

	ALL EMPLOYEES			FULL-TIME EMPLOYEES		
	1999	2009	Change from 1999 to 2009	1999	2009	Change from 1999 to 2009
	\$	\$	%	\$	\$	%
<b>Males</b>						
Manufacturing	781.5	1 121.1	43.5	826.2	1 201.6	45.4
All industries	733.0	1 109.8	51.4	853.4	1 344.4	57.5
<b>Females</b>						
Manufacturing	541.7	850.5	57.0	640.5	1 015.4	58.5
All industries	483.0	729.8	51.1	683.5	1 071.5	56.8
<b>Persons</b>						
Manufacturing	719.3	1 050.3	46.0	786.3	1 161.1	47.7
All industries	611.1	918.8	50.4	790.6	1 241.3	57.0

(a) Derived by dividing estimates of weekly total earnings (including overtime) by estimates of number of employees. Changes in average weekly earnings may be affected not only by changes in the level of earnings of employees but also by changes in the overall composition of the wage and salary earner segment of the labour force.

(b) The actual reference period is the last pay period ending on or before the third Friday of the middle month of the quarter.

Source: Average Weekly Earnings, Australia (6302.0).

leather, clothing and footwear manufacturing (31,100).

Table 20.8 presents information on average weekly earnings (i.e. ordinary time earnings plus overtime earnings) of employees in the manufacturing industry compared with all industries. Between May 1999 and May 2009 the average earnings of all employees increased by \$331 (46%) in the manufacturing industry. The increase in the manufacturing industry was higher (in dollar terms) than the increase of \$308 for all industries, though lower in percentage terms. The increase in average earnings of full-time employees between May 1999 and May 2009 (in percentage terms) was lower in the manufacturing industry than for all industries (48% versus 57%).

In the manufacturing industry, the earnings of both male and female full-time employees increased but the increase for female employees was 13 percentage points more than the increase for male employees. Despite this increase, female earnings remain below average male earnings. The average weekly earnings for the manufacturing industry for male full-time employees at May 2009 was higher by \$186 (18%) than for female full-time employees. In May 1999

male full-time employees were earning \$186 (29%) more than female full-time employees.

### Operating profit before tax (OPBT)

OPBT is a measure of profit before extraordinary items are brought to account and prior to the deduction of income tax and appropriations to owners (e.g. dividends paid).

Profits for eleven industry subdivisions were higher in 2007–08 than they were for 2006–07 (table 20.9). Manufacturing industries with lower OPBT in 2007–08 were beverage and tobacco product manufacturing, down 24% or \$781 million (m), machinery and equipment manufacturing (down 5% or \$177m), fabricated metal product manufacturing (down 2% or \$47m) and primary metal and metal product manufacturing (down less than 1% or \$67m).

The furniture and other manufacturing industry subdivision experienced the greatest increase in OPBT between 2006–07 and 2007–08 (113% or \$512m). Other industries that experienced substantial profit growth over these periods included petroleum and coal product manufacturing (77% or \$864m) and polymer product and rubber product manufacturing (50% or \$624m). The OPBT for total manufacturing

## 20.9 MANUFACTURING INDUSTRY(a), Operating profit before tax

ANZSIC Subdivision	2006–07	2007–08	Change	Subdivision
			from 2006–07 to 2007–08	contribution to total manufacturing 2007–08
	\$m	\$m	%	%
Food product manufacturing	2 634	3 467	31.6	10.1
Beverage and tobacco product manufacturing	3 306	2 525	-23.6	7.4
Textile, leather, clothing and footwear manufacturing	577	740	28.2	2.2
Wood product manufacturing	811	1 177	45.1	3.4
Pulp, paper and converted paper product manufacturing	431	607	40.8	1.8
Printing (including the reproduction of recorded media)	752	852	13.3	2.5
Petroleum and coal product manufacturing	1 122	1 986	77.0	5.8
Basic chemical and chemical product manufacturing	2 923	3 197	9.4	9.4
Polymer product and rubber product manufacturing	1 254	1 878	49.8	5.5
Non-metallic mineral product manufacturing	1 364	1 528	12.0	4.5
Primary metal and metal product manufacturing	8 148	8 081	-0.8	23.6
Fabricated metal product manufacturing	2 644	2 597	-1.8	7.6
Transport equipment manufacturing	968	1 450	49.8	4.2
Machinery and equipment manufacturing	3 308	3 131	-5.4	9.2
Furniture and other manufacturing	453	965	113.0	2.8
<b>Total manufacturing</b>	<b>30 696</b>	<b>34 181</b>	<b>11.4</b>	<b>100.0</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.  
Source: Australian Industry, Australia, 2007–08 (8155.0).



## 20.10 MANUFACTURING INDUSTRY(a), Capital expenditure

ANZSIC Subdivision	2006-07	2007-08	Change	Subdivision
			from 2006-07 to 2007-08	contribution to total manufacturing 2007-08
	\$m	\$m	%	%
Food product manufacturing	2 174	3 020	38.9	16.5
Beverage and tobacco product manufacturing	951	927	-2.5	5.1
Textile, leather, clothing and footwear manufacturing	276	357	29.3	2.0
Wood product manufacturing	417	549	31.7	3.0
Pulp, paper and converted paper product manufacturing	566	731	29.2	4.0
Printing (including the reproduction of recorded media)	620	589	-5.0	3.2
Petroleum and coal product manufacturing	540	607	12.4	3.3
Basic chemical and chemical product manufacturing	1 704	1 599	-6.2	8.8
Polymer product and rubber product manufacturing	619	510	-17.6	2.8
Non-metallic mineral product manufacturing	981	1 000	1.9	5.5
Primary metal and metal product manufacturing	3 764	3 543	-5.9	19.4
Fabricated metal product manufacturing	940	1 602	70.4	8.8
Transport equipment manufacturing	1 786	1 445	-19.1	7.9
Machinery and equipment manufacturing	1 228	1 535	25.0	8.4
Furniture and other manufacturing	208	246	18.3	1.3
<b>Total manufacturing</b>	<b>16 773</b>	<b>18 257</b>	<b>8.8</b>	<b>100.0</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.  
Source: Australian Industry, Australia, 2007-08 (8155.0).

increased by 11% or \$3,485m between 2006-07 and 2007-08.

Industries contributing most to total manufacturing industry profits for 2007-08 were primary metal and metal product manufacturing (24% of total manufacturing OPBT), food product manufacturing (10%) and basic chemical and chemical product manufacturing and machinery and equipment manufacturing (both 9%).

### Capital expenditure

Overall, capital expenditure by the manufacturing industry increased by \$1,484m (9%) between 2006-07 and 2007-08 (table 20.10).

Eight of the fifteen manufacturing industry subdivisions recorded increases in capital expenditure in this period. The largest increases in percentage terms were in fabricated metal product manufacturing (70% or \$662m), food product manufacturing (39% or \$846m), and wood product manufacturing (32% or \$132m). These increases were partly offset by decreases in expenditure in transport equipment manufacturing (down 19% or \$341m), polymer product and rubber product manufacturing (down 18% or \$109m) and primary metal and

metal product manufacturing (down 6% or \$221m).

The manufacturing industries with the largest capital expenditure were primary metal and metal product manufacturing (19% of total manufacturing capital expenditure), food product manufacturing (17%) and fabricated metal product manufacturing and basic chemical and chemical product manufacturing (both 9%).

### Research and experimental development (R and D)

In the business context, R and D is defined as systematic investigation or experimentation involving innovation or technical risk, the outcome of which is new knowledge, with or without a specific practical application or new or improved products, processes, materials, devices or services. R and D activity extends to modifications to existing products and processes. R and D activity ceases and pre-production begins when work is no longer experimental.

Total R and D business expenditure by the manufacturing industry increased by \$126m (3%) between 2005-06 and 2006-07 (table 20.11). Industries contributing the most to manufacturing R and D expenditure in 2006-07

### 20.11 MANUFACTURING INDUSTRY(a), Business R&D expenditure(b)

	2004—05	2005—06	2006—07
<i>ANZSIC Subdivision</i>	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	343	331	384
Textile, clothing, footwear and leather manufacturing	35	39	31
Wood and paper product manufacturing	115	150	130
Printing, publishing and recorded media	71	93	145
Petroleum, coal, chemical and associated product manufacturing	598	707	675
Non-metallic mineral product manufacturing	70	93	103
Metal product manufacturing	412	622	618
Motor vehicle and part and other transport equipment manufacturing	757	859	861
Photographic and scientific equipment manufacturing	320	223	422
Electronic and electrical equipment and appliance manufacturing	470	487	355
Industrial machinery and equipment manufacturing	174	171	192
Other manufacturing	60	62	47
<b>Total manufacturing</b>	<b>3 424</b>	<b>3 837</b>	<b>3 963</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 edition.

(b) Includes capital and current expenditure.  
Source: Research and Experimental Development, Businesses, Australia (8104.0).

### 20.12 MANUFACTURING INDUSTRY(a), Type of business expenditure on R&D—2006—07

	Capital expenditure	Labour costs	Other current expenditure	Total
<i>ANZSIC Subdivision</i>	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	26	178	180	384
Textile, clothing, footwear and leather manufacturing	6	14	11	31
Wood and paper product manufacturing	15	29	87	130
Printing, publishing and recorded media	6	68	70	145
Petroleum, coal, chemical and associated product manufacturing	64	225	386	675
Non-metallic mineral product manufacturing	9	32	62	103
Metal product manufacturing	44	158	416	618
Motor vehicle and part and other transport equipment manufacturing	48	435	378	861
Photographic and scientific equipment manufacturing	15	219	188	422
Electronic and electrical equipment and appliance manufacturing	11	189	155	355
Industrial machinery and equipment manufacturing	22	88	82	192
Other manufacturing	4	22	20	47
<b>Total manufacturing</b>	<b>271</b>	<b>1 657</b>	<b>2 035</b>	<b>3 963</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 edition.  
Source: Research and Experimental Development, Businesses, Australia (8104.0).

were motor vehicle and part and other transport equipment manufacturing (22%), petroleum, coal, chemical and associated product manufacturing (17%), metal product manufacturing (16%) and photographic and scientific equipment manufacturing (11%). Together, these industries accounted for 66% of total R and D expenditure by the manufacturing industry and 21% of the total R and D expenditure by all industries.

Of manufacturing industry total R and D business expenditure in 2006—07, 7% was on capital expenditure, 42% on labour costs and 51% on other current expenditure (table 20.12). The

motor vehicle and part and other transport equipment manufacturing industry contributed the largest expenditure on R and D by the manufacturing industry for labour costs (26%). The petroleum, coal, chemical and associated product manufacturing industry was the largest contributor for capital expenditure (24%). Manufacturing accounted for 34% of the capital expenditure, 39% of the labour costs, and 29% of other current expenditure on R and D by all industries.

## Price indexes

The ABS compiles two price indexes relating to the manufacturing industry – the price index of materials used in manufacturing industries and the price index of articles produced by manufacturing industries. Information on recent trends in the prices of materials used and articles produced in individual manufacturing industries is provided in the section *Producer price indexes* (PPI) in the *Prices* chapter.

## International trade

The manufacturing industry is a significant component of Australia's value of merchandise exports by industry of origin, accounting for 40% of total exports in 2008–09 (table 20.13). The

value of manufacturing exports was 59% higher in 2008–09 than in 1999–2000. However, the manufacturing industry share of the total value of merchandise exports has been trending down over this period, in particular falling significantly between 2007–08 and 2008–09.

Graph 20.14 shows the five main destinations, by value, for manufacturing commodities exported from Australia during the period 2002–03 to 2008–09. Of these, the key destinations in 2008–09 were the United Kingdom, the United States of America (USA), and Japan. In 2008–09, the value of exports to the United Kingdom was just under \$10b, compared with just over \$8b for the USA and just under \$8b for Japan. Over the period 2002–03 to 2008–09 the value of exports

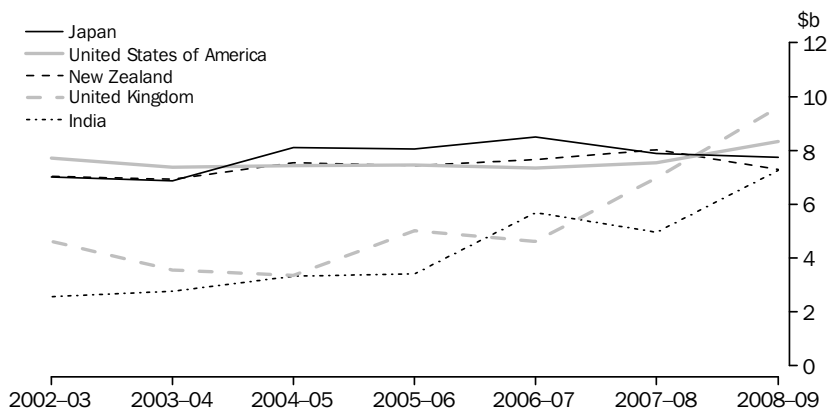
**20.13 VALUE OF MERCHANDISE EXPORTS OF GOODS, By industry of origin(a)**

	Manufacturing	All industries	Manufacturing share of total exports
	\$m	\$m	%
1999–2000	57 982	97 286	59.6
2000–01	69 128	119 539	57.8
2001–02	69 111	121 108	57.1
2002–03	65 810	115 479	57.0
2003–04	62 442	109 049	57.3
2004–05	67 496	126 823	53.2
2005–06	75 102	152 492	49.2
2006–07	85 383	168 099	50.8
2007–08	88 496	180 857	48.9
2008–09	92 457	230 620	40.1

(a) On a free-on-board basis.

Source: ABS data available on request, International Trade.

**20.14 MANUFACTURING EXPORTS, Main destinations**



Source: ABS data available on request, International Trade.

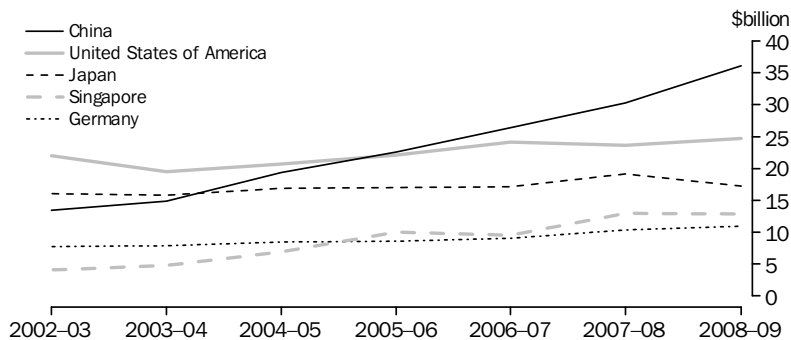
## 20.15 VALUE OF MERCHANDISE IMPORTS OF GOODS, By industry of origin(a)

	Manufacturing	All industries	Manufacturing share of total imports
	\$m	\$m	%
1999–2000	102 382	110 078	93.0
2000–01	108 331	118 317	91.6
2001–02	111 162	119 649	92.9
2002–03	123 041	133 129	92.4
2003–04	122 844	130 997	93.8
2004–05	138 011	149 469	92.3
2005–06	152 841	167 503	91.2
2006–07	164 354	180 801	90.9
2007–08	181 682	202 307	89.9
2008–09	195 114	219 485	88.9

(a) Customs value.

Source: ABS data available on request, International Trade.

## 20.16 MANUFACTURING IMPORTS(a), Selected countries



(a) Customs value.

Source: ABS data available on request, International Trade.

to India has increased by around two and half times (from just under \$3b to just over \$7b).

More than 90% of Australia's total value of imports during the period 1999–2000 to 2007–08 were manufactured goods (table 20.15). In 2008–09 this figure dropped slightly to 89%. The value of Australia's imports of manufactured goods almost doubled for the period 1999–2000 to 2007–08, from \$102b to \$195b.

Graph 20.16 shows the value of manufacturing commodities imported from five selected countries to Australia, in the period 2002–03 to 2008–09. From 2002–03 to 2004–05 Australia imported more manufactured goods from the USA than from any other country. However, in 2005–06, China overtook the USA as the country providing the largest amount of imports. The

value of imports from China grew by 86% (from \$19b to \$36b) between 2004–05 and 2008–09.

## Manufactured commodities

Table 20.17 shows the quantities produced of selected manufactured commodities for the period 2004–05 to 2007–08.

The largest increases between 2004–05 and 2007–08 were experienced in the production of premixed concrete and alumina. Production of these commodities increased by 16% and 13% respectively.

Over the same period, the largest declines in production were recorded by clay bricks, and cars and station wagons for fewer than 10 people

**20.17 MANUFACTURING PRODUCTION, Selected commodities**

		2004-05	2005-06	2006-07	2007-08	Percentage change from 2004-05 to 2007-08
<b>Selected vehicles</b>						
Cars and station wagons for fewer than ten persons	no.	398 819	352 002	334 863	342 688	-14.1
<b>Selected food products and beverages</b>						
Brandy spirit	'000 L	578	535	510	508	-12.1
Unfortified wine	'000 L	1 400 074	1 397 754	946 996	1 221 726	-12.7
Red meat	'000 t	3 142	3 092	3 292	3 226	2.7
Chicken meat	'000 t	750	773	812	797	6.3
Milk	ML	10 124	10 090	9 583	9 212	-9.0
Cheese	'000 t	388	373	364	359	-7.5
Butter(a)	'000 t	147	146	133	128	-12.9
Beer	ML	1 685	1 714	1 706	1 677	-0.5
Sugar(b)	'000 t	5 234	5 063	5 026	4 763	-9.0
<b>Selected textiles</b>						
Scoured and carbonised wool(c)	t	70 901	53 253	na	na	na
Wool and man-made fibre tops(c)	t	17 313	4 572	na	na	na
Wool yarn(d)	t	2 390	1 362	1 137	na	na
Cotton yarn(c)	t	5 432	np	na	na	na
<b>Selected petroleum and metal products</b>						
Automotive gasoline	ML	17 913	16 528	17 732	17 079	-4.7
Fuel oil	ML	1 092	1 048	942	979	-10.3
Automotive diesel oil	ML	12 822	10 154	11 055	12 177	-5.0
Aviation turbine fuel	ML	5 325	5 216	5 332	5 182	-2.7
Alumina	'000 t	17 161	17 826	18 506	19 359	12.8
Pig iron	'000 t	5 969	6 195	6 337	6 307	5.7
Raw steel(e)	'000 t	7 395	7 866	8 010	8 121	9.8
<b>Selected paper and wood products</b>						
Paper and paperboard(f)	'000 t	3 244	3 221	3 192	3 281	1.1
Wood based panels(g)	'000 m <sup>3</sup>	1 894	1 944	1 743	1 800	-5.0
<b>Selected building materials</b>						
Portland cement	'000 t	8 925	8 910	9 380	9 839	10.2
Clay bricks	m	1 705	1 606	1 570	1 459	-14.4
Premixed concrete	'000 m <sup>3</sup>	22 915	23 914	24 932	26 593	16.1

na not available

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes the butter equivalent of butter oil, butter concentrate, ghee and dry butterfat production.

(b) Raw tonnes actual.

(c) Collection ceased in June 2006.

(d) Collection ceased in June 2007.

(e) Includes recovery from scrap.

(f) Includes newsprint, printing and writing, household and sanitary and packaging and industrial.

(g) Includes plywood, particleboard and medium density fibreboard.

Source: Australian Wine and Grape Industry, (1329.0); Livestock Products, Australia (7215.0); Manufacturing Production, Australia, (8301.0.55.001); ABS data available on request, Manufacturing Production Survey; Australian Bureau of Agricultural and Resource Economics (ABARE), 'Australian Commodity Statistics, 2008' and 'Australian Forest and Wood Product Statistics, September and December quarters, 2008'.

(both falling by around 14%), butter and unfortified wine (both falling by just under 13%), and brandy spirit (12%).

All of the selected petroleum products experienced a decrease in production between 2004–05 and 2007–08, with fuel oil production falling the most with a decrease of 10%. Production of automotive diesel oil and automotive gasoline both fell by 5% over this period, although production of both commodities fluctuated in the years between 2004–05 and 2007–08.

Among the metal products, after alumina, the largest increase in production was for raw steel (10%), followed by pig iron (6%). For the selected food products and beverages, the production of both chicken meat and red meat increased (by 6% and 3%, respectively).

## **International trade in manufactured commodities**

### **Principal commodities exported**

Table 20.18 provides details of 20 selected manufacturing commodities exported from Australia, for the periods 2007–08 and 2008–09. These commodities contributed 36% in total of the value of all merchandise exports in 2008–09.

Gold (non-monetary excluding gold ores and concentrates), petroleum, petroleum products and related materials and non-ferrous metals were the only three of these selected commodities to each contribute more than 4% to the total value of merchandise exports in 2008–09, contributing 7%, 5% and 5% respectively.

Between 2007–08 and 2008–09, the value of exports for road vehicles (including air-cushion vehicles) fell by 20% (\$0.9b), while the value of exports for petroleum, petroleum products and

related materials fell by 17% (\$2b). In 2008–09, the value of exports increased for 13 of the 20 selected commodities. The value of exports of gold, non-monetary (excluding gold ores and concentrates) increased by 40% (\$5b). The value of exports of cereal and cereal preparations increased by 38% (\$2b) in 2008–09 (representing 3% of the total value of Australian exports), while the value of exports of transport equipment (excluding road vehicles) rose by 25% (\$0.3b).

### **Principal commodities imported**

Table 20.19 provides details of 20 selected manufactured commodities imported into Australia, for the periods 2007–08 and 2008–09. These commodities contributed 75% in total of the value of all merchandise imports in 2008–09.

In comparing the main commodities Australia exported with the main commodities imported in terms of value, it is apparent many of Australia's manufactured exports are simply transformed manufactured commodities such as food products and metals, while the majority of manufactured imports are elaborately transformed commodities such as machinery and equipment.

Of the selected commodities imported into Australia in 2008–09, the major commodity by value was petroleum, petroleum products and related materials, which made up 13% of imports.

In 2008–09, the value of imports increased for 16 of the 20 selected commodities. The value of imports of gold (non-monetary excluding gold ores and concentrates) increased by 54% (\$4b) and iron and steel increased by 49% (\$2b). Conversely, the largest decrease in the value of imports in percentage terms in 2008–09 was for transport equipment (excluding road vehicles), with a fall of 41% (\$2b), followed by road vehicles (including air-cushion vehicles), with a fall of 19% (\$5b).

## 20.18 EXPORTS OF SELECTED MANUFACTURED COMMODITIES

Commodity group (a)	2007–08	2008–09	Change from 2007–08 to 2008–09	Share of total exports 2008–09
	\$m	\$m	%	%
Non-ferrous metals	12 611.5	11 027.3	-12.6	4.8
Petroleum, petroleum products and related materials	13 219.0	11 032.0	-16.5	4.8
Gold, non-monetary (excluding gold ores and concentrates)	12 045.9	16 892.8	40.2	7.3
Meat and meat preparations	6 542.1	7 452.7	13.9	3.2
Cereals and cereal preparations	4 973.4	6 881.1	38.4	3.0
Medicinal and pharmaceutical products	3 947.8	4 029.4	2.1	1.7
Road vehicles (including air cushion vehicles)	4 591.1	3 675.2	-19.9	1.6
Textile fibres and their wastes (not manufactured into yarn or fabric)	2 994.6	2 562.5	-14.4	1.1
Beverages	2 831.3	2 644.2	-6.6	1.1
Dairy products and birds' eggs	2 622.0	2 569.7	-2.0	1.1
Electrical machinery, apparatus, appliances, parts (including non-electrical counterparts of electrical domestic equipment)	1 872.4	1 717.3	-8.3	0.7
Professional, scientific and controlling instruments and apparatus, n.e.s.	1 887.4	2 219.1	17.6	1.0
General industrial machinery and equipment, n.e.s. and machine parts, n.e.s.	1 711.1	1 887.3	10.3	0.8
Machinery specialised for particular industries	1 735.6	1 937.3	11.6	0.8
Office machines and automatic data processing machines	1 119.2	1 186.1	6.0	0.5
Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof	1 066.5	1 147.9	7.6	0.5
Transport equipment (excluding road vehicles)	1 129.2	1 412.9	25.1	0.6
Non-metallic mineral manufactures, n.e.s.	771.9	889.3	15.2	0.4
Telecommunications and sound recording and reproducing apparatus and equipment	907.9	1 097.7	20.9	0.5
Cork and wood manufactures (excluding furniture)	159.0	164.7	3.6	0.1

(a) Based on the UN Standard International Trade Classification (SITC R4).

Source: ABS data available on request, International Trade.

## 20.19 IMPORTS OF SELECTED MANUFACTURED COMMODITIES(a)

	2007-08	2008-09	Change from 2007-08 to 2008-09	Share of total imports 2008-09
<i>Commodity group (b)</i>	\$m	\$m	%	%
Road vehicles (including air-cushion vehicles)	26 078.8	21 195.0	-18.7	9.7
Petroleum, petroleum products and related materials	29 376.7	27 385.5	-6.8	12.5
General industrial machinery and equipment, nes and machine parts, nes	9 722.2	12 083.8	24.3	5.5
Telecommunications and sound recording and reproducing apparatus and equipment	11 150.1	11 647.2	4.5	5.3
Office machines and automatic data processing machines	8 612.5	9 014.1	4.7	4.1
Electrical machinery, apparatus, appliances, parts (including non-elec. counterparts of electrical domestic equip)	9 051.1	10 162.3	12.3	4.6
Medicinal and pharmaceutical products	7 988.1	9 080.2	13.7	4.1
Machinery specialised for particular industries	7 858.4	7 959.5	1.3	3.6
Gold, non-monetary (excluding gold ores and concentrates)	7 316.1	11 250.9	53.8	5.1
Manufactures of metals, nes	4 841.8	5 710.9	17.9	2.6
Articles of apparel and clothing accessories	4 585.2	5 523.5	20.5	2.5
Professional, scientific and controlling instruments and apparatus, nes	4 426.2	5 012.7	13.3	2.3
Transport equipment (excluding road vehicles)	5 812.0	3 417.8	-41.2	1.6
Iron and steel	3 720.9	5 529.8	48.6	2.5
Power generating machinery and equipment	4 447.6	5 350.3	20.3	2.4
Organic chemicals	3 463.3	3 429.9	-1.0	1.6
Paper, paperboard, and articles of paper pulp, of paper or of paperboard	2 731.2	2 837.1	3.9	1.3
Rubber manufactures, nes	2 516.6	2 705.9	7.5	1.2
Textile yarn, fabrics, made-up articles, nes, and related products	2 500.5	2 594.0	3.7	1.2
Non-metallic mineral manufactures, nes	2 481.4	2 791.7	12.5	1.3

(a) Customs value.

(b) Based on the UN Standard International Trade Classification (SITC R4).

Source: ABS data available on request, International Trade.



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## CONSTRUCTION

The construction industry has a major influence on every Australian and plays a significant role in the Australian economy. Construction provides homes, places for people to work, and recreation facilities. It provides essential facilities and infrastructure such as schools, hospitals, roads, water and electricity supply and telecommunications. The demand for, and supply of construction is influenced by a variety of factors including interest rates, tax changes and changes in populations.

The construction industry, and its activities, are strongly linked to other parts of the Australian economy such as manufacturing, wholesale trade, retail trade, and finance and insurance industries. In addition, architectural and engineering professions are closely linked with the industry.

The construction industry engages in three broad areas of activity:

- residential building (e.g. houses, flats, etc.)
- non-residential building (e.g. offices, shops, hotels, etc.)
- engineering construction (e.g. roads, bridges, water, sewerage, etc.).

Both the private and public sectors undertake construction activity within Australia. The private sector operates in all three areas of activity, with a major role in residential and non-residential building activity. The public sector has a major role in initiating and undertaking engineering construction. In addition it has a role in non-residential building activity, in particular for the health and education industries, building hospitals and schools.

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Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Construction industry

The contribution of an industry to the overall production of goods and services in an economy, gross domestic product (GDP), is measured by gross value added (GVA). Information on the relationship between industry GVA and GDP is provided in the *Industry structure and performance* chapter.

Total production of the construction industry, as measured by GVA (in volume terms), generally increased from 1991–92 to 1999–2000. The peak in 1999–2000 was followed by a sharp decline. Construction industry GVA (in volume terms) has increased steadily since 2000–01, and in 2007–08 reached \$77 billion (b) (graph 21.1).

In 2007–08 the construction industry's share of the total production of goods and services in the Australian economy (GDP) was 7%.

In 2008–09 the construction industry employed an average of 988,000 people (table 21.2), 2% higher than in 2007–08. The number of employees and own account workers increased by 3% and less than 1% respectively since 2007–08, while the number of employers fell by 2%. Own account workers are people who operate their own unincorporated economic enterprise or engage independently in a profession or trade, and hire no employees.

In 2008–09 the majority of construction industry employment was in construction services (654,600 people or 66%), which includes those engaged in services such as earthmoving, concreting, bricklaying, roofing, plumbing,

electrical, carpentry, painting, glazing and landscaping. Building construction includes the construction of houses, other residential buildings and non-residential buildings. In 2008–09 average annual employment in building construction decreased by 3% to 238,300 people.

The Australian Bureau of Statistics compiles two price indexes relating to the construction industry - the Price Index of Output of the General Construction Industry, and the Price Index of Materials Used in Home Building. Information on recent trends in these indexes is provided in *Construction industries indexes* in the *Prices* chapter.

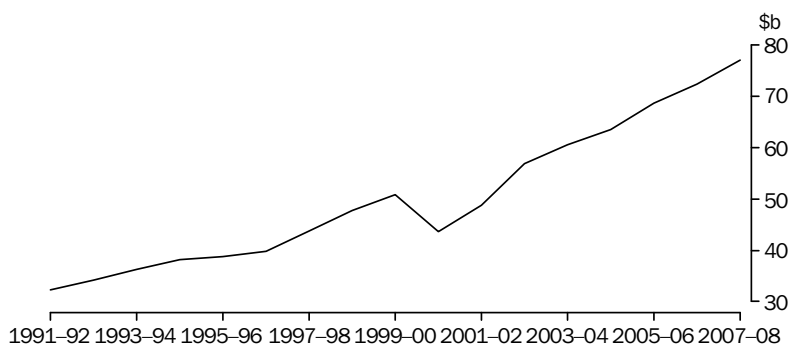
## Construction activity

Construction activity is carried out by both private and public sectors. In 2008–09 the value of construction work done (in volume terms) for the public sector was \$34b (graph 21.3). Private sector construction can be volatile. It experienced a sharp decline in 2000–01. Between 2007–08 and 2008–09 private sector construction (in volume terms) increased by 6% to \$107b.

In the three broad areas of construction activity – residential building, non-residential building, and engineering construction – the pattern of construction activity by area of activity has changed significantly over time.

Residential building activity which accelerated to a high level prior to the introduction of The New Tax System in July 2000, was followed by a substantial downturn in 2000–01 (graph 21.4). In

**21.1 CONSTRUCTION PRODUCTION(a)(b)**



(a) Industry gross value added at basic prices. (b) Volume measures. Reference year is 2006–07.

Source: Australian System of National Accounts (5204.0).

## 21.2 CONSTRUCTION INDUSTRY, Employment(a)

	2007-08	2008-09
	'000	'000
Building construction		
Employee	204.0	198.6
Employer	9.3	8.4
Own account worker(b)	31.5	30.4
Total(c)	245.7	238.3
Heavy and Civil Engineering Construction		
Employee	56.0	64.2
Employer	1.0	1.9
Own account worker(b)	3.4	3.1
Total(c)	60.4	69.2
Construction Services		
Employee	408.6	419.2
Employer	43.7	42.5
Own account worker(b)	185.6	189.3
Total(c)	640.4	654.6
Total construction(d)		
Employee	685.2	706.4
Employer	54.3	53.2
Own account worker(b)	221.9	223.8
Total(c)	<b>964.8</b>	<b>988.0</b>

- (a) Annual average of quarterly data.  
 (b) A worker that hires no employees.  
 (c) Includes contributing family worker.  
 (d) Includes categories Building Construction, Heavy and Civil Engineering, Construction, Construction Services and Construction nfd.

Source: Labour Force, Australia, Detailed, Quarterly (6291.0.55.003).

2005-06 engineering construction activity surpassed residential building in value, and reached \$70b in 2008-09.

## Residential building

Residential building involves the construction of dwelling units, including new houses, other new residential buildings (flats, apartments, villa units, townhouses, duplexes, etc.), and dwellings created as part of alterations and additions to existing buildings (including conversions to dwelling units).

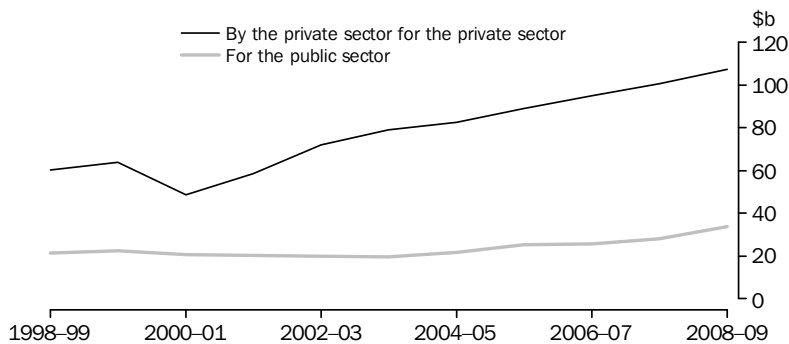
## Residential building approvals

Building approvals are used as a key indicator of future activity, as nearly all building activity must be approved by local and/or other authorities.

Graph 21.5 shows new houses and new other residential dwelling unit approvals. In 2008-09 the total number of dwelling unit approvals was 132,568, a fall of 30,164 dwelling units (19%) compared with 2007-08. Between 2007-08 and 2008-09 the number of new house approvals fell by 14%, while new other residential dwelling unit approvals fell by 27%.

Other residential building refers to a building other than a house primarily used for long-term

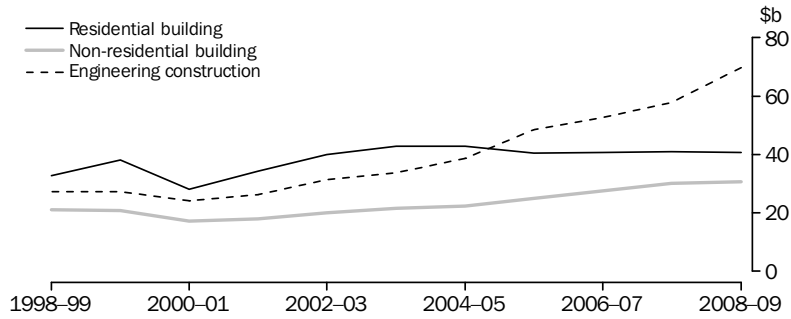
## 21.3 CONSTRUCTION WORK DONE(a), By sector



(a) Volume measures. Reference year is 2006-07.

Source: Construction Work Done, Australia, Preliminary (8755.0).

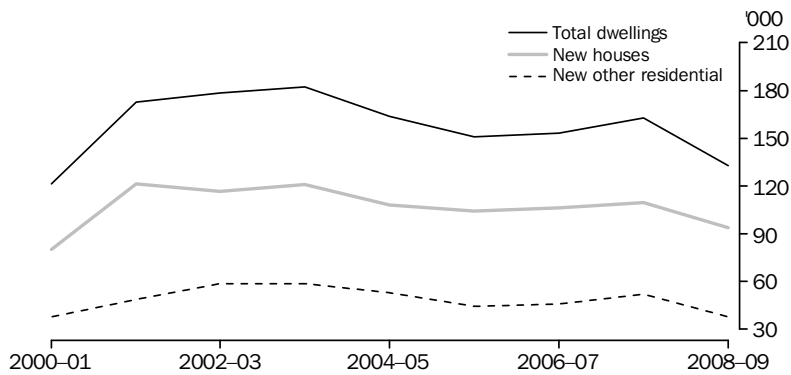
### 21.4 VALUE OF WORK DONE(a), By type of activity(b)



(a) Volume measures. Reference year is 2006-07. (b) Residential building includes alterations and additions.

Source: *Construction Work Done, Australia, Preliminary (8755.0)*.

### 21.5 DWELLING UNITS APPROVED



Source: *Building Approvals, Australia (8731.0)*.

### 21.6 NEW OTHER RESIDENTIAL DWELLING UNITS APPROVED

	2007-08	2008-09
New semi-detached, row or terrace houses, townhouses, etc.		
One storey	10 518	8 230
Two or more storeys	12 264	9 070
Total	22 782	17 300
New flats, units or apartments in a building		
One or two storeys	3 332	2 610
Three storeys	4 293	2 997
Four or more storeys	21 530	14 826
Total	29 155	20 433
<b>Total</b>	<b>51 937</b>	<b>37 733</b>

Source: *Building Approvals, Australia (8731.0)*.

## 21.7 VALUE OF BUILDING WORK DONE(a), By type of activity

	NEW RESIDENTIAL BUILDING			Alterations and additions	Non-residential building	Total building
	Houses	Other residential buildings	Total			
	\$m	\$m	\$m			
2007–08	25 589	10 874	36 464	6 780	32 016	75 260
2008–09	25 834	11 848	37 682	6 792	33 739	78 213

(a) In current prices.

Source: Building Activity, Australia (8752.0).

residential purposes and which contains (or has attached to it) more than one dwelling unit. This includes buildings such as blocks of flats, units and apartments, and semi-detached houses and townhouses.

In 2008–09 the number of new dwelling units approved in new residential buildings for new flats, units and apartments fell by 30%, from 29,155 in 2007–08, to 20,433 (table 21.6).

In 2008–09 new semi-detached, row or terrace houses and townhouses approvals for two or more storeys fell by 26%, while approvals for one storey dwellings fell by 22%. For new flat, unit or apartment building approvals, those with four or more storeys fell by 31%, while those in a building of three storeys fell by 30%, and those of one or two storeys fell by 22%. Approvals for new flats, units or apartments accounted for 54% of total new other residential building approvals in 2008–09.

### New residential building work done

Between 2007–08 and 2008–09 the value of total building work done increased by \$2,953m (4%) to \$78,213m (table 21.7). Total new residential building increased from \$36,464m to \$37,682m, with new residential building for houses rising by \$245m or just under 1%.

### Non-residential building

The value of non-residential building work approved in 2008–09 fell 19% to \$30,113m (table 21.8). Between 2007–08 and 2008–09 the type of non-residential buildings which experienced the largest relative increase in approvals was educational buildings (53%). Those that experienced a significant fall in approvals included accommodation (42%), warehouses (41%), offices (40%), non-aged care medical services health facilities (39%), aged care facilities

(29%), retail and wholesale trade buildings (25%) and transport buildings (24%).

The total value of non-residential building work done rose 5% to \$33,739m in 2008–09. The largest percentage increases in value of non-residential work done were experienced by agricultural and aquacultural buildings (56%), other commercial buildings n.e.c. (33%) and non-aged care medical services health facilities (24%). A fall in work done for non-residential building work occurred for warehouses (16%), religious buildings (9%), and aged care facilities and retail and wholesale trade buildings (both falling by 3%).

### Engineering construction

The total value of engineering construction work done by the private sector for the private sector and for the public sector, between 1998–99 and 2008–09, is shown in graph 21.9. The value of both private and public sector engineering construction work done (in volume terms) increased over the last year. Since around 2001–02 the value of engineering construction work done by the private sector has increased substantially and has been of greater value than work done for the public sector.

Table 21.10 shows the contribution of public and private sectors to engineering construction work done (in current prices). The private sector share of the total construction work done was 64% in 2007–08 and 63% in 2008–09.

Engineering construction for oil, gas, coal and other minerals mining accounted for 32% of the total value of engineering construction work done in 2008–09 (30% in 2007–08), with total value for this construction increasing 34% between 2007–08 and 2008–09. The value of private sector construction activity for oil, gas, coal and other minerals increased 33% between

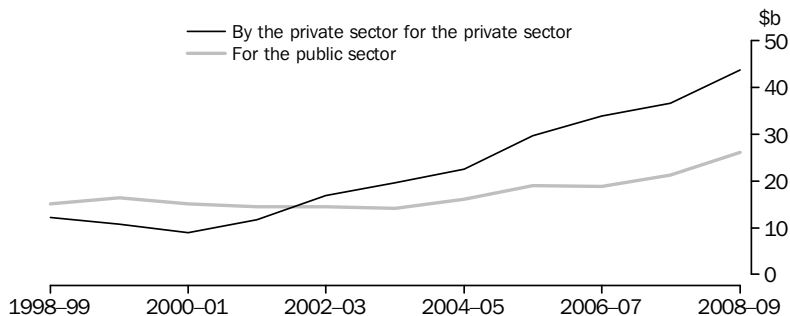
## 21.8 VALUE OF NON-RESIDENTIAL BUILDING WORK(a)(b)

	APPROVED		WORK DONE	
	2007-08	2008-09	2007-08	2008-09
	\$m	\$m	\$m	\$m
<b>Commercial</b>				
Retail/wholesale trade	6 144	4 623	6 022	5 910
Transport	1 048	803	868	982
Offices	9 862	5 873	7 576	8 326
Other commercial n.e.c.	248	227	188	250
<i>Total</i>	<i>17 302</i>	<i>11 526</i>	<i>14 654</i>	<i>15 468</i>
<b>Industrial</b>				
Factories	1 307	1 194	1 331	1 475
Warehouses	3 581	2 131	3 294	2 775
Agricultural/aquacultural	234	246	174	280
Other industrial n.e.c.	442	349	434	547
<i>Total</i>	<i>5 564</i>	<i>3 921</i>	<i>5 233</i>	<i>5 077</i>
<b>Other non-residential</b>				
Educational	3 441	5 277	3 443	3 791
Religious	124	127	157	143
Aged care facilities	1 320	933	1 355	1 310
Health	2 899	1 770	1 614	2 007
Entertainment and recreation	2 218	2 091	2 077	2 248
Accommodation	1 932	1 128	1 377	1 374
Other non-residential n.e.c.	2 347	3 339	2 107	2 323
<i>Total</i>	<i>14 282</i>	<i>14 666</i>	<i>12 130</i>	<i>13 196</i>
<b>Total non-residential building work</b>	<b>37 148</b>	<b>30 113</b>	<b>32 016</b>	<b>33 739</b>

(a) Valued at \$50,000 or more.  
 (b) In current prices.

Source: Building Activity, Australia (8752.0); Building Approvals, Australia (8731.0).

## 21.9 ENGINEERING CONSTRUCTION WORK DONE, By sector(a)(b)



(a) Volume measures. Reference year is 2006-07. (b) Public sector includes private sector work done for the public sector and public sector work.

Source: Engineering Construction Activity, Australia (8762.0).

2007-08 and 2008-09 (from \$18,228m to \$24,330m). The private sector share of railways construction work fell from 52% in 2007-08 to 36% in 2008-09, while its share of roads, highways of construction work and subdivisions fell from 41% to 38% over the same period. The value of total pipelines construction increased by

35% between 2007-08 and 2008-09, total electricity generation, transmission and distribution construction increased by 33%. For the same periods, the value of telecommunications engineering construction work fell by 10% while water storage and supply engineering construction work fell by 3%.

**21.10 VALUE OF ENGINEERING CONSTRUCTION WORK DONE(a)**

	2007-08			2008-09		
	<i>For the private sector</i>	<i>For the public sector</i>	<i>Total</i>	<i>For the private sector</i>	<i>For the public sector</i>	<i>Total</i>
	\$m	\$m	\$m	\$m	\$m	\$m
Roads, highways and subdivisions	5 096	7 479	12 575	6 157	10 125	16 282
Bridges	94	1 110	1 204	88	1 153	1 241
Railways	1 568	1 463	3 031	1 217	2 173	3 390
Harbours	1 031	492	1 523	1 240	699	1 939
Water storage and supply	750	3 944	4 694	599	3 970	4 569
Sewerage and drainage	895	1 760	2 655	1 024	1 984	3 008
Electricity generation, transmission and distribution	3 727	4 933	8 660	5 211	6 305	11 516
Pipelines	624	40	664	883	11	894
Recreation	1 127	654	1 781	1 228	907	2 135
Telecommunications	4 405	31	4 436	3 934	55	3 989
Oil, gas, coal and other minerals	18 228	162	18 390	24 330	238	24 568
Other heavy industry	926	13	939	1 154	3	1 157
Other	487	63	550	1 253	257	1 510
<b>Total</b>	<b>38 957</b>	<b>22 143</b>	<b>61 100</b>	<b>48 318</b>	<b>27 880</b>	<b>76 198</b>

(a) In current prices.

Source: Engineering Construction Activity, Australia (8762.0).



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## SERVICE INDUSTRIES

This chapter presents an overview and a range of statistical information for a selection of service industries, with a focus on those industries that have recently been surveyed by the Australian Bureau of Statistics (ABS).

For the purposes of this chapter, services-producing industries have been defined as all industries other than goods-producing industries (Agriculture, forestry and fishing; Mining; Manufacturing; Electricity, gas, water and waste services; and Construction). For tables 22.1 and 22.3, service industries are classified according to the 1993 edition of the Australian and New Zealand Standard Industrial Classification (ANZSIC), while table 22.2 (employment) uses the 2006 edition of ANZSIC. For more information regarding the differences between the 1993 and 2006 ANZSIC classifications please see the article titled "Australian and New Zealand Industrial Classification 2006" in the *Industry structure and performance* chapter in this edition of Year Book Australia.

Classified according to the 1993 edition of ANZSIC, service industries encompass the following industries: Wholesale trade; Retail trade; Accommodation, cafes and restaurants; Transport and storage; Communication services; Financial and insurance services; Property and business services; Government administration and defence; Education; Health and community services; Cultural and recreational services; and Personal and other services.

In 2007–08 the services-producing industries' overall contribution to the total production of goods and services in the Australian economy (gross domestic product) was 55%.

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Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Service industries sector

The contribution of an industry to the overall production of goods and services in an economy, gross domestic product (GDP), is measured by gross value added (GVA). Information on the relationship between industry GVA and GDP is provided in the *Industry structure and performance* chapter.

In 2007–08 the largest services-producing industry, in terms of industry GVA was the Property and business services industry, which accounted for 12% of GDP, followed by the Finance and insurance services industry (7%).

The Communication services industry recorded the largest percentage increase in GVA over the period 2003–04 to 2007–08 (30%), or an average annual growth rate of 7% per year (in volume terms). The next largest average annual growth rate over the period was recorded by Finance and insurance services (6%) and Transport and storage (5%). The smallest growth rate in industry GVA was that of the Education industry, with an average annual increase of 1% over the four-year period (table 22.1).

Average annual total employment in the service industries in 2008–09 was 8,103,000 people (table 22.2), which represented 75% of all employment.

The largest employing service industry was Retail trade, with average annual employment in 2008–09 of 1,208,000 people, accounting for 15% of total employment in the services sector. Other large employing industries were Health care and social assistance (1,141,000 people), Education and training (801,000 people), and Professional, scientific and technical services (777,000 people).

Between 2007–08 and 2008–09 Transport, postal and warehousing employment increased by 39,000 people or 7%, followed by Public administration and safety employment (an increase of 37,000 people or 6%) and Health care and social assistance (45,000 people or 4%). The greatest decrease in total employed persons occurred in Rental, hiring and real estate services, with a fall of 6,000 people or 3%.

## Selected service industries

The remainder of the chapter presents statistics obtained from regular surveys of Retail trade and Wholesale trade, plus other service industry surveys conducted by the ABS for Museums;

### 22.1 SERVICE INDUSTRIES(a), Gross value added(b)

	2003–04	2007–08	Average annual growth from 2003–04 to 2007–08
	\$m	\$m	%
Wholesale trade	43 861	49 013	2.8
Retail trade	51 506	58 932	3.4
Accommodation, cafes and restaurants	18 568	20 529	2.5
Transport and storage	42 221	51 294	5.0
Communication services	20 336	26 377	6.7
Finance and insurance services	64 377	80 270	5.7
Property and business services(c)	117 175	131 907	3.0
Government administration and defence	36 607	40 708	2.7
Education	41 380	43 681	1.4
Health and community services	55 193	64 758	4.1
Cultural and recreational services	13 574	16 120	4.4
Personal and other services	17 441	19 848	3.3

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 Edition.

(b) Volume measures. Reference year is 2006-07.

(c) Excludes ownership of dwellings.

Source: Australian System of National Accounts (5204.0).

## 22.2 SERVICE INDUSTRIES(a), Employment(b)

	2007-08	2008-09	Change
			2007-08 to 2008-09
	'000	'000	%
Wholesale trade	391	401	2.5
Retail trade	1 229	1 208	-1.7
Accommodation and food services	704	711	1.0
Transport, postal and warehousing	551	590	7.1
Information media and telecommunications	229	223	-2.6
Financial and insurance services	403	396	-1.8
Rental, hiring and real estate services	199	193	-3.1
Professional, scientific and technical services	781	777	-0.6
Administrative and support services	349	344	-1.5
Public administration and safety	632	669	5.8
Education and training	793	801	1.1
Health care and social assistance	1 096	1 141	4.1
Arts and recreation services	194	200	3.0
Other services	462	449	-2.7
<b>Total</b>	<b>8 013</b>	<b>8 103</b>	<b>1.1</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 Edition.

(b) Annual average of quarterly data.  
Source: Labour Force, Australia, Detailed, Quarterly (6291.0.55.003).

Legal services; Cafes, restaurants and catering services; Digital game development services; Performing arts; Accommodation services; Television, film and video production and post-production services; and Not-for-profit organisations.

### Retail trade

The Retail trade industry comprises businesses primarily engaged in the sale of new or used

goods to final consumers for personal or household consumption, or in selected repair activities such as repair of household equipment or motor vehicles.

The estimate of retail turnover includes the value of turnover from businesses such as supermarkets, clothing and department stores, as well as hospitality and selected service businesses such as cafes and restaurants, hotels and licensed clubs. It excludes motor vehicle retailing and

## 22.3 RETAIL TURNOVER(a), Volume measures(b)

INDUSTRY(c)	INDUSTRY(c)						Total
	Food retailing	Department stores	Clothing and soft good retailing	Household good retailing	Other retailing	Cafes, restaurants and takeaway food services	
	\$m	\$m	\$m	\$m	\$m	\$m	\$m
2004-05	76 975	16 720	12 876	29 976	29 884	23 586	189 886
2005-06	78 926	16 734	13 636	31 854	28 870	23 989	193 934
2006-07	81 148	17 255	14 549	34 855	29 806	25 280	202 892
2007-08	83 953	17 886	15 349	37 292	32 082	25 381	211 943
2008-09	85 813	18 037	15 892	37 452	33 084	24 693	214 970

(a) Based on quarterly data.

(b) Reference year is 2006-07.

(c) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 Edition.  
Source: Retail Trade, Australia (8501.0).

services. In order to measure the actual expenditure of consumers, retail turnover is recorded from 1 July 2000 inclusive of the Goods and Services Tax (GST).

Table 22.3 presents retail turnover for the period 2004–05 to 2008–09. Total retail turnover (in volume terms) increased by 13% between 2004–05 and 2008–09.

Between 2007–08 and 2008–09 the turnover (in volume terms) of Clothing and soft good retailing increased by 4%; Other retailing by 3%; Food retailing by 2%; and Department stores and Household good retailing both by less than 1%. The turnover of Cafes, restaurants and takeaway food services decreased by 3% between 2007–08 and 2008–09.

### Wholesale trade

The Wholesale trade industry covers those businesses involved in the sale of new or used goods to businesses or to institutional (including government) users. Graph 22.4 shows annual volume measures of total wholesale trade sales.

### Museums

At the end of June 2008, There were 1184 museums/galleries organisations, operating from 1,456 locations across Australia, comprising: 768 social history museums; 425 historic properties/sites; 180 art museums/galleries; and 83 other types of museums (table 22.5).

These museums contained more than 52 million artefacts, artworks and museum objects at 30

June 2008, and were visited by almost 31 million visitors during 2007–08. The majority of admissions were free of charge (68%). A total of \$113 million (m) was spent on acquiring museum objects and artworks, and 3,970 special exhibitions and displays were held.

At 30 June 2008, there were 7,856 people employed in museums, while during the month of June 2008 there were a large number of volunteers (23,426) assisting with museum operations.

During 2007–08, museums generated a total of \$998 million(m) in income. Most of this income was sourced from government funding (\$658m or 66%). Fundraising operations provided \$106m (11%) and admissions \$76m (8%).

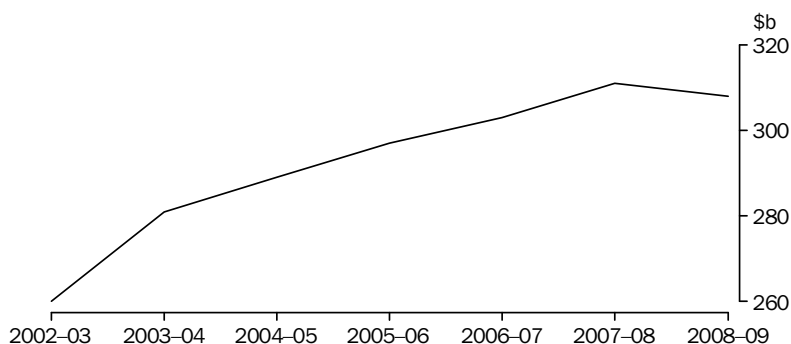
Of the \$860m incurred in expenses by museums during 2007–08, labour costs were the most significant specific expense at \$381m (44% of total expenses).

In 2007–08, Victoria had the highest proportion of total admissions to museums for Australia (30%), followed by New South Wales (27%) and the Australian Capital Territory (13%) (graph 22.6).

### Legal services

At 30 June 2008 there were 15,326 businesses and organisations mainly engaged in the provision of legal services or legal support services in Australia. These organisations comprised 11,244 'other legal services' (businesses providing legal services including solicitor, patent attorney,

22.4 WHOLESALE SALES(a)



(a) Volume measures. Reference year is 2006–07.

Source: *Business Indicators, Australia (5676.0)*.

## 22.5 MUSEUMS—2007–08

		<i>Social history museums</i>	<i>Art museums/galleries</i>	<i>Historic properties/sites</i>	<i>Other museums</i>	<i>Total</i>
Museum/gallery locations at end June	no.	768	^ 180	^ 425	^ 83	1 456
Persons employed at end June	no.	1 886	2 509	1 411	2 050	7 856
Volunteers during the month of June	no.	^ 12,752	^ 3,741	^ 4,898	^ 2,035	23 426
<b>Income</b>						
Government funding	\$m	155.1	257.5	62.8	182.3	657.8
Admissions	\$m	15.4	19.6	25.9	14.7	75.6
Fundraising	\$m	18.5	65.3	9.9	12.3	106.0
Other	\$m	35.5	53.6	36.6	33.4	159.0
<i>Total</i>	\$m	224.5	396.0	135.3	242.7	998.4
<b>Expenses</b>						
Labour costs	\$m	77.2	126.4	54.6	122.4	380.7
Conservation expenses of museum objects/artworks	\$m	^ 3.0	^ 2.2	3.4	1.1	9.8
Exhibition/display development costs	\$m	6.9	22.0	1.7	5.2	35.8
Other	\$m	114.0	157.1	58.0	104.7	433.8
<i>Total</i>	\$m	201.1	307.7	117.8	233.5	860.1
<b>Number of admissions</b>						
Paid	'000	^ 2,890.2	2 177.7	2 574.1	2 161.2	9 803.2
Free	'000	^ 5,888.5	^ 10,771.9	1 154.0	3 099.9	^ 20,914.3
<i>Total</i>	'000	^ 8,778.7	^ 12,949.6	3 728.1	5 261.1	30 717.5
Museum objects/artworks at end June	'000	^ 5,847.8	* 2 854.7	^ 759.4	43 023.3	52 485.3
Total acquisitions of museum objects and artworks	\$m	^ 11.4	83.2	1.0	17.0	112.5
Special exhibitions/displays held	no.	^ 1 357	^ 2,073	* 317	^ 222	^ 3,970

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution  
Source: Museums, Australia, 2007–08 (8560.0).

notary, conveyancing and title searching businesses, plus businesses providing support services), 3,869 barristers, 179 community legal centres, 9 Aboriginal legal services, 9 government solicitors, 9 public prosecutors, and 8 legal aid commissions organisations (table 22.7).

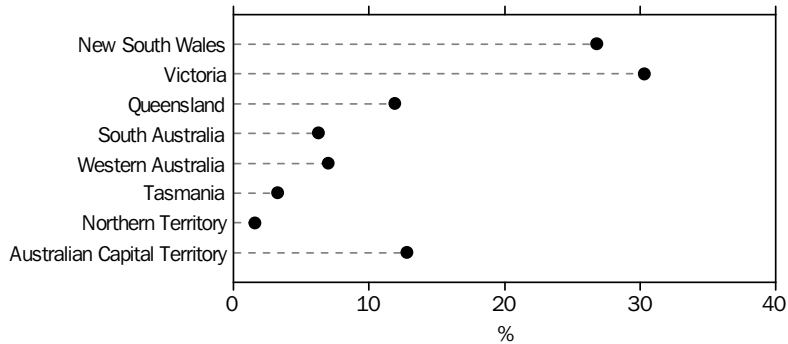
Legal services had a total employment at 30 June 2008 of 99,696 persons, comprising 84,921 'other legal services' (85% of total legal services employment), 5,154 barristers (5%) and 9,622 other staff (10%).

During 2007–08, legal services generated \$18,011m in income. The main source of income was fee income from the provision of legal and

legal support services (\$16,363m or 91% of total income). Government funding accounted for \$1,073m (6% of total income). Income per person employed averaged \$180,700 per person, comprising \$271,300 for barristers; \$212,700 for legal aid commissions; \$179,100 for 'other legal services' people; \$159,300 for government solicitors; \$139,200 for public prosecutors; \$96,800 for Aboriginal legal services; and \$61,100 for community legal services.

Legal services incurred total expenses of \$12,395m during 2007–08, with wages and salaries (\$4,567m) being the most significant specific expense, accounting for 37% of total expenses. Payments for legal and legal support

## 22.6 ADMISSIONS TO MUSEUMS(a)—2007-08



(a) As a proportion of total admissions.

Source: Museums, Australia, 2007-08 (8560.0).

## 22.7 LEGAL SERVICES—2007-08

		Barristers	Legal aid commissions	Community legal centres	Aboriginal legal services	Other(a)	Total
Businesses/organisations(b)	no.	3 869	8	179	9	11 262	15 326
Employment(b)	no.	5 154	2 597	1 742	769	89 435	99 696
<b>Income</b>							
Fee income(c)	\$m	1 387.7	16.2	1.3	0.9	14 693.2	16 362.7(d)
Government funding	\$m	.	519.6	93.6	71.2	388.9	1 073.3
Other	\$m	*10.6	16.5	11.6	2.4	^514.9	^574.6(d)
<b>Total</b>	<b>\$m</b>	<b>1 398.3</b>	<b>552.3</b>	<b>106.5</b>	<b>74.4</b>	<b>15 879.1</b>	<b>18 010.6</b>
<b>Expenses</b>							
Wages and salaries	\$m	^ 40.5	152.0	57.1	36.3	4 280.7	4 566.8
Payments(e)	\$m	^99.8	264.1	0.4	4.7	2 415.0	2 784.0
Other	\$m	247.7	148.9	43.5	30.1	4 573.8	5 044.1
<b>Total</b>	<b>\$m</b>	<b>388.1</b>	<b>565.0</b>	<b>101.1</b>	<b>71.1</b>	<b>11 269.5</b>	<b>12 394.8</b>
Operating profit/surplus before tax	\$m	1 010.2	.	na	na	4 581.0	na
Income per person employed	\$'000	271.3	212.7	61.1	96.8	na	180.7
Industry value added	\$m	1 083.8	182.8	69.2	42.7	9 565.1	10 943.5

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

.. not applicable

na not available

(a) Government solicitors, public prosecutors and other legal services.

(b) At end June.

(c) From the provision of legal and legal support services.

(d) Includes data not available for publication but included in total.

(e) For legal and legal support services.

Source: Legal Services, Australia, 2007-08 (8667.0).

services accounted for \$2,784m (22% of total expenses).

The operating profit before tax during 2007-08 was \$4,581m for 'other legal services' and \$1,010m for barristers. Industry value added totalled \$10,944m, with 'other legal services' contributing \$9,565m (87% of the total), and barristers' services \$1,084m (10%).

## Cafes, restaurants and catering services

An important component of hospitality services is cafes, restaurants and catering services. This includes businesses mainly engaged in operating cafes and restaurants for consumption of meals on the premises, and businesses mainly engaged in catering services. Businesses mainly engaged in

takeaway food services are excluded. The estimates are based on the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 edition (ANZSIC06).

At 30 June 2007 there were 15,423 businesses in cafes, restaurants and catering services (table 22.8), comprising 5,213 licensed cafes and restaurants; 2,736 licensed and Bring Your Own (BYO) cafes and restaurants; 2,005 BYO cafes and restaurants; 3,983 unlicensed cafes and restaurants, and 50 chefs. In addition, there were 1,437 catering businesses.

At 30 June 2007 total employment in cafes, restaurants and catering services was 195,814 people, of whom 74,328 (38%) were waiting staff, 35,586 (18%) were kitchen hands, 23,963 (12%) were managers/supervisors, and 22,012 (11%) were qualified chefs/cooks.

During 2006–07 cafes and restaurants generated \$9,703m in income. Almost two thirds of this income (65%) was generated from sales of meals consumed on the premises. Catering services generated \$3,971m (29% of total cafes, restaurants and catering services income of \$13,673m), while sales of liquor and other beverages accounted for \$2,725m (20%) of total income.

Total expenses of businesses during 2006–07 were \$13,108m. The two largest expense items were purchases (\$4,839m) and labour costs (\$4,778m), which represented 37% and 36% respectively of total expenses.

During 2006–07, cafes, restaurants and catering services recorded an operating profit before tax of \$576m, representing an operating profit margin of 4%. Industry value added was \$5,696m.

## 22.8 CAFES, RESTAURANTS AND CATERING SERVICES—2006–07

		<i>Cafes and restaurants</i>	<i>Catering services</i>	<i>Total</i>
Businesses at 30 June	no.	13 987	^ 1,437	15 423
Employment at 30 June				
Managers/supervisors	no.	18 237	5 726	23 963
Qualified chefs/cooks	no.	17 500	4 512	22 012
Other chefs/cooks	no.	^ 13 209	4 832	18 041
Kitchen hands	no.	^ 23,860	11 727	35 586
Bar attendants and baristas	no.	^ 8,370	^ 4,299	^ 12,669
Waiting staff	no.	60 639	^ 13,689	74 328
Other	no.	^ 3,732	5 483	9 215
<i>Total</i>	no.	145 546	50 268	195 814
Income				
Takings from meals consumed on the premises	\$m	6 329.8	*98.8	6 428.6
Takings from takeaway food	\$m	^ 646.1	**23.7	^ 669.8
Takings from catering services	\$m	*108.9	3 182.4	3 291.3
Sale of liquor and other beverages	\$m	2 460.7	^ 263.9	2 724.6
Other	\$m	^ 157.1	401.8	558.9
<i>Total</i>	\$m	9 702.6	3 970.7	13 673.2
Expenses				
Labour costs	\$m	3 160.0	1 617.7	4 777.7
Purchases	\$m	3 618.0	1 221.2	4 839.1
Rent, leasing and hiring	\$m	1 031.3	^ 138.0	1 169.3
Other	\$m	1 546.0	776.3	2 322.3
<i>Total</i>	\$m	9 355.2	3 753.1	13 108.3
Operating profit before tax	\$m	^ 368.3	208.1	^ 576.4
Operating profit margin	%	^ 3.8	5.3	^ 4.2
Industry value added	\$m	3 862.4	1 833.1	5 695.5

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

Source: Cafes, Restaurants and Catering Services, Australia, 2006–07 (8655.0).



## Digital game development services

At 30 June 2007, there were 45 businesses in Australia involved in the provision of digital game development services (table 22.9).

At 30 June 2007, there were 1,431 people employed by digital game development businesses. Artists and animators accounted for

### 22.9 DIGITAL GAME DEVELOPMENT SERVICES—2006–07

Businesses at 30 June	no.	45
Employment at 30 June		
Managerial/administrative/clerical	no.	212
Designers	no.	136
Artists and animators	no.	491
Programmers	no.	417
Audio technicians	no.	26
Technical support	no.	33
Quality assurance	no.	105
Other	no.	11
Total	no.	1 431
Income		
Provision of game development services to other businesses		
Received from Australian resident businesses/individuals	\$m	8.6
Received from non-resident businesses/individuals	\$m	108.3
Government funding	\$m	1.7
Other	\$m	18.3
Total	\$m	136.9
Income from the provision of game development services to other businesses		
Consoles	\$m	83.2
Handhelds	\$m	11.2
PC and Mac	\$m	17.1
Mobile phones	\$m	np
Other	\$m	np
Total	\$m	116.9
Expenses		
Labour costs	\$m	83.8
Payments to other businesses/contractors for game production services	\$m	11.2
Other	\$m	33.5
Total	\$m	128.5
Industry value added	\$m	98.2
Operating profit before tax	\$m	8.5
Operating profit margin	%	6.2

np not available for publication but included in totals where applicable, unless otherwise indicated

Source: Digital Game Development Services, Australia, 2006–07 (8515.0).

34% (491 people) of total employment, while programmers accounted for 29% (417 people). Managerial/administrative/clerical workers contributed 15% (212 people) to total employment.

During 2006–07 these businesses generated a total income of \$137m, which represented an average of \$3m per business. Income from the provision of game development services accounted for 85% (\$117m) of total income. Income received from non-resident businesses for the provision of game development services accounted for 79% (\$108m) of total income. Government funding contributed 1% (\$2m) to total income in 2006–07.

Games developed for console formats (e.g. Playstation, Xbox, Wii) accounted for 71% (\$83m) of total income from the provision of game development services, while games developed for PC and Mac formats accounted for 15% (\$17m).

Total expenses incurred during 2006–07 were \$129m. Almost two-thirds of this amount was attributable to labour costs (\$84m).

During 2006–07 digital game development services businesses recorded industry value added of \$98m, an operating profit before tax of \$9m, and an operating profit margin of 6%.

## Performing arts

Businesses/organisations primarily involved in performing arts operation have two components - performing arts operation, and performing arts venue operation. These businesses/organisations are mainly engaged in providing live theatrical or musical presentations (including popular music production, theatre production, opera, ballet and drama).

### Performing arts operation

At the end of June 2007, there were 726 performing arts operation businesses/organisations (table 22.10). Of these, 180 were primarily involved in popular music production, 102 in symphony and choral production, 143 in drama production, 36 in dance production and 264 in other productions such as musical theatre, circuses, etc. These 726 businesses/organisations comprised 381 for-profit businesses and 345 not-for-profit organisations.

## 22.10 PERFORMING ARTS OPERATION—2006–07

		Popular music performance	Symphony and choral performance	Drama production	Dance production	Other music and theatre production	Total
Businesses/organisations at end June	no.	180	102	143	^ 36	264	726
Employment at end June	no.	^ 644	1 679	1 580	636	2 030	6 569
Volunteers during the month of June	no.	^ 19	^ 2,111	^ 1,137	^ 148	^ 3,166	6 582
Income							
Box office income	\$m	^ 24.3	48.3	83.8	21.0	178.7	356.0
Government funding	\$m	0.9	78.6	33.7	23.5	37.1	173.8
Other	\$m	30.5	41.4	34.4	20.9	76.4	203.5
<i>Total</i>	\$m	55.8	168.2	151.8	65.4	292.2	733.4
Expenses							
Labour costs	\$m	^ 11.3	80.5	55.2	28.0	80.2	255.2
Contract payments to performers/artists and artistic support	\$m	^ 6.7	17.7	5.9	3.2	23.8	57.3
Rent, leasing and hiring	\$m	^ 2.5	10.7	21.2	6.6	31.9	72.9
Other	\$m	26.7	44.2	66.9	25.7	133.8	297.3
<i>Total</i>	\$m	47.2	153.1	149.2	63.5	269.8	682.7
Paid performances(a)	no.	^ 6,813	4 766	14 368	1 398	^ 16,115	43 460
Paid attendances(a)	'000	^ 1,815.3	^ 2,219.6	3 146.2	527.6	4 547.7	12 256.3
Industry value added	\$m	20.2	80.1	52.9	26.0	102.4	281.5
Operating profit/surplus before tax	\$m	^ 8.7	15.1	*2.5	2.0	22.0	50.4
Operating profit/surplus margin	%	16.1	19.6	*2.3	5.6	9.0	9.6

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution  
\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Includes overseas performances/attendances.  
Source: Performing Arts, Australia, 2006–07 (8697.0).

At the end of June 2007, there were 6,569 people working in performing arts operation activities. More people were employed as performing artists (50% of total employment or 3,249 people) than managers, administrative or clerical staff (24% or 1,542 people). Performing artists consisted mainly of singers and musicians (1,980 people or 61% of total performing artists), actors (467 people or 14%) and dancers (290 people or 9%). In addition to paid employment, there were 6,582 volunteers during the month of June 2007.

During 2006–07, businesses/organisations predominantly involved in performing arts operation generated \$733m in income. The main source of income for these businesses/organisations was box office income (\$356m), which accounted for just under half (49%) of total income, while Government funding accounted for 24% (\$174m) of total income.

Performing arts operation businesses/organisations incurred \$683m in

expenses during 2006–07. Labour costs were the most significant expense (37% of total expenses or \$255m). Rent, leasing and hiring accounted for 11% (or \$73m) and contract payments to performers/artists and artistic support 8% (or \$57m) of total expenses.

During 2006–07, the 726 performing arts operation businesses/organisations reported 43,460 paid performances (of which 5% or 2,280 were performed overseas) and 12 million paid attendances (of which 7% or 899,200 were at productions performed overseas). Drama production accounted for the largest proportion of total paid performances (33% or 14,368) followed by popular music (16% or 6,813) and musical theatre (13% or 5,799). Drama production also accounted for the largest share of paid attendances (26% or 3 million), followed by symphony and choral production (18% or 2.2 million) and musical theatre (16% or 2 million).

During 2006–07 total value added by performing arts operation businesses/organisations was \$282m, while operating profit before tax was \$50m and the operating profit margin was 10%.

### 22.11 PERFORMING ARTS VENUE OPERATION—2006–07

Businesses/organisations at end June	no.	145
Venues at end June		
Capital cities and suburbs	no.	109
Major regional areas	no.	49
Other regional areas	no.	30
Total	no.	189
Performing arts spaces at end June	no.	271
Seating capacity	'000	226.7
Paid performances		
Popular music	no.	2 950
Symphony and choral	no.	1 176
Dance	no.	2 408
Drama	no.	6 153
Opera	no.	479
Musical theatre	no.	3 037
Other performing arts	no.	2 962
Sporting	no.	249
Other performances with paid admissions	no.	1 404
Total	no.	20 819
Employees at end June		
Managerial/administrative/clerical support	no.	1 524
Front of house	no.	1 693
Sales and catering	no.	880
Performing artists and artistic support	no.	126
Technical/performing arts support	no.	1 486
Other	no.	166
Total	no.	5 876
Volunteers during the month of June		1 935
Income		
Government funding	\$m	165.7
Rent, leasing and hiring	\$m	117.9
Box office income	\$m	81.3
Other	\$m	129.5
Total	\$m	494.4
Expenses		
Labour costs	\$m	179.6
Repair and maintenance	\$m	35.6
Other	\$m	266.7
Total	\$m	481.9
Industry value added	\$m	206.7
Operating profit/surplus before tax	\$m	12.8
Operating profit/surplus margin	%	4.2

Source: Performing Arts, 2006–07 (8697.0).

### Performing arts venue operation

At the end of June 2007, there were 145 performing arts venue operators in Australia (table 22.11). These businesses/organisations operated 189 separate venues. The majority of these venues were in capital cities and suburbs (58%).

The 189 performing arts venues in Australia had 271 spaces and a combined seating capacity of 226,700, with an average seating capacity per performing arts space of 837.

There were 20,819 performances with paid admissions held in performing arts venues during 2006–07. Drama performances (30% or 6,153) accounted for the largest share of total performances, followed by musical theatre performances (15% or 3,037), popular music (14% or 2,950) and dance (12% or 2,408).

There were 5,876 people employed by performing arts venue operators at the end of June 2007. In addition to paid employees, there were 1,935 volunteers during the month of June 2007.

During 2006–07, performing arts venue operators generated a total income of \$494m. The two main sources of income were government funding (\$166m) and rent, leasing and hiring (\$118m) which represented 34% and 24% of total income respectively. Box office income accounted for \$81m (16% of total income).

Performing arts venue operators incurred \$482m in expenses during 2006–07. Labour costs accounted for \$180m (37%) of total expenses and repair and maintenance 7% (\$36m).

Total industry value added by these businesses/organisations was \$207m. Performing arts venue operators recorded an operating profit/surplus before tax of \$13m, and an operating profit/surplus margin of 4%.

### Accommodation services

Accommodation services include businesses providing visitor accommodation services, such as hotels, motels, holiday houses and flats, serviced apartments, resorts, ski lodges, student residences (other than boarding schools), youth hostels, holiday parks, caravan parks and camping grounds.

## 22.12 ACCOMMODATION ESTABLISHMENTS—2006–07

Businesses at end June	no.	5 891
Establishments at end June		
Licensed hotels	no.	^ 481
Motels	no.	^ 2,345
Serviced apartments	no.	^ 583
Holiday parks, caravan parks and camping grounds	no.	^ 1,374
Visitor hostels (including backpacker hostels)	no.	^ 550
Bed and breakfast establishments	no.	* 248
Resorts	no.	^ 313
Other	no.	^ 775
<i>Total</i>	no.	6 668
Employment at end June		
Managers/supervisors	no.	13 918
Clerical and administrative staff	no.	16 590
Chefs/cooks	no.	6 861
Kitchen hands	no.	4 676
Food and beverage staff	no.	17 019
Room attendants	no.	26 979
Maintenance staff	no.	6 138
Other	no.	3 749
<i>Total</i>	no.	95 931
Income		
Takings from the provision of accommodation(a)	\$m	6 519.6
Takings from meals	\$m	1 388.1
Sales of liquor and other beverages	\$m	599.7
Other	\$m	1 368.8
<i>Total</i>	\$m	9 876.2
Expenses		
Labour costs	\$m	3 160.7
Purchases	\$m	1 071.8
Rent, leasing and hiring	\$m	831.2
Other	\$m	3 780.1
<i>Total</i>	\$m	8 843.9
Industry value added	\$m	4 774.9
Operating profit before tax	\$m	1 060.5
Operating profit margin	%	11.0

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Includes takings from the provision of permanent residential accommodation

Source: Accommodation Services, Australia, 2006–07 (8695.0).

### Accommodation establishments

At the end of June 2007, there were 5,891 businesses in Australia mainly involved in the provision of accommodation services (table 22.12). These accommodation businesses operated 6,668 accommodation establishments around Australia. Motels accounted for more than one-third (35% or 2,345 establishments) of all establishments and holiday parks, caravan parks and camping grounds one-fifth (21% or 1,374 establishments). Serviced apartments and visitor

hostels accounted for 9% (583 establishments) and 8% (550 establishments), respectively.

There were 95,931 people employed by accommodation businesses in Australia at the end of June 2007.

During 2006–07 accommodation services businesses generated a total income of \$9,876m, which represented an average of \$2m per business. The main source of income for these businesses was takings from accommodation which accounted for two-thirds (66% or \$6,520m)

of total income, followed by takings from meals (14% or \$1,388m).

Total expenses incurred during 2006–07 were \$8,844m. Labour costs accounted for just over a third (36% or \$3,161m) of total expenses, followed by purchases (12% or \$1,072m) and rent, leasing and hiring (9% or \$831m).

During 2006–07 total industry value added by these businesses was \$4,775m, while operating profit before tax was \$1,061m and their operating profit margin was 11%.

## **Television, film and video production and post-production services**

Television, film and video production and post-production services include businesses mainly engaged in television broadcasting services, and film and video production and post-production services.

Television broadcasters included Australian businesses mainly engaged in public, commercial free-to-air or subscription television broadcasting, or mainly engaged in the provision of subscription television channel content. These services include the production of television programs, whether live or on tape or other recording medium, for own use. Community television broadcasters were excluded.

Film and video production and post-production services included businesses in Australia that were mainly engaged in film, television program, television commercial and video production. Post-production services included businesses mainly engaged in providing post, digital and visual effects services, including specialised film or video post-production services such as editing, film/tape transfers, titling, subtitling, credits, closed captioning and computer-processed graphics, animation and special effects, as well as developing and processing motion picture film.

### **Television, film and video production**

During 2006–07, these businesses incurred \$1,882m in production costs, which included all costs relating to the development, pre-production, on-set production and post-production for films, television programs and other film and video productions (table 22.13). Productions made primarily for television accounted for most of these costs (73% or

\$1,366m). Production of commercials, station promotions and program promotions accounted for 13% (\$243m) and productions made other than for television 15% (\$273m).

News and current affairs programs incurred the highest production costs (\$412m), followed by light entertainment and variety (\$306m), sport (\$268m) and drama (\$153m). Television broadcasters accounted for 65% (\$889m) of total production costs for productions made primarily for television.

### **Film and video production services**

Table 22.14 shows that at the end of June 2007 there were 2,492 film and video production and post-production services businesses operating in Australia.

Collectively, these businesses employed 13,844 people. On-set production staff accounted for the greatest number of people employed (41% or 5,727 people). Animation, computer generated imagery and visual effects technicians accounted for 5% (673 people) of total employment for film and video production and post-production services businesses.

These businesses generated \$2,028m in income, with the majority earned from film, video and television production (56% or \$1,132m of total income), followed by post-production services (21% or \$428m), and production services (17% or \$344m).

Film and video production services incurred \$1,857m in expenses in 2006–07. Labour costs accounted for 33% of specified total expenses (\$620m), followed by payments to other businesses/contractors for production services (19% or \$356m) and payments to other businesses/contractors for post-production services (6% or \$104m).

The operating profit before tax of these businesses was \$174m and their operating profit margin was 9%. Total industry value added by film and video production and post-production services businesses was \$886m.

### **Commercial television broadcasting**

The operations of commercial television broadcasters comprised commercial free-to-air and subscription television broadcasters.

## 22.13 TELEVISION, FILM AND VIDEO PRODUCTION, Production costs—2006–07

	\$m
Productions made primarily for television	
By television broadcasters(a)	889.3
By other businesses(b)	476.8
Type of production	
Drama(c)	152.9
Documentaries	^ 39.8
Situation and sketch comedy	15.1
Light entertainment and variety	306.1
News and current affairs	411.5
Sport	268.4
Quiz, panel and game shows	74.8
Productions made specifically for children	
Children's drama	33.8
Other children's programs	*30.7
Total	^ 64.5
Other types of production	33.0
Total	1 366.2
Production of commercials, station promotions and program promotions	
By television broadcasters and subscription television channel providers(a)	47.2
By other businesses(d)	
Made primarily for Australian market	^ 111.0
Made primarily for overseas market	**85.0
Total	*195.9
Total	^ 243.1
Productions made other than for television(d)	
Feature films	183.8
Documentaries	4.8
Short films	1.4
Educational media	*6.0
Corporate, marketing and training media	*71.7
Music media	^ 1.3
Other	^ 4.1
Total	273.2
<b>Total</b>	<b>1 882.4</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Includes commercial free-to-air, subscription and public television broadcasters. Excludes community television broadcasters. Also excludes co-productions between television broadcasters and other businesses.

(b) Includes two types of businesses: those whose primary activity was film and video production or post-production services and those whose primary activity was subscription television channel provision with in-house production. Includes all costs associated with co-production between television broadcasters and other businesses.

(c) Excludes children's programs.

(d) Includes businesses whose primary activity was film and video production or post-production services.

Source: Television, Film and Video Production and Post-production Services, Australia, 2006–07 (8679.0).

Commercial free-to-air television broadcasters employed 6,980 people at the end of June 2007 (table 22.15). These businesses generated \$4,530m in income during 2006–07. Their main source of income was the sale of airtime (\$3,611m).

During 2006–07, commercial free-to-air television broadcasters had expenses of \$3,704m. The main expenses for these businesses were program

rights expensed (\$725m or 20% of total expenses) and labour costs (\$682m or 18%).

The operating profit before tax of commercial free-to-air television broadcasting businesses was \$834m and their operating profit margin was 19%. Industry value added by these businesses was \$1,817m.

## 22.14 FILM AND VIDEO PRODUCTION SERVICES—2006–07

Businesses at end June	no.	2 492
Employment at end June		
Managerial/administrative/clerical support	no.	4 059
On-set production staff	no.	5 727
Off-set staff, including pre- and post-production staff	no.	3 006
Animation, computer generated imagery and visual effects technicians	no.	673
Other	no.	377
<i>Total</i>	no.	13 844
Income		
Production income	\$m	1 132.4
Provision of production services to other businesses	\$m	^ 343.7
Provision of post-production services to other businesses	\$m	427.6
Other	\$m	124.5
<i>Total</i>	\$m	2 028.1
Expenses		
Labour costs	\$m	620.1
Payments to other businesses/contractors for production services	\$m	356.1
Payments to other businesses/contractors for post-production services	\$m	104.1
Other	\$m	777.1
<i>Total</i>	\$m	1 857.4
Operating profit or loss before tax	\$m	^ 173.9
Operating profit margin	%	^ 8.8
Industry value added	\$m	886.0

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution  
 Source: Television, Film and Video Production and Post-production Services, Australia, 2006–07 (8679.0).

## 22.15 COMMERCIAL FREE-TO-AIR TELEVISION BROADCASTING(a)—2006–07

Employment at end June	no.	6 980
Income		
Gross income from the sale of airtime	\$m	3 610.9
Other	\$m	919.2
<i>Total</i>	\$m	4 530.1
Expenses		
Labour costs	\$m	682.1
Program rights expensed	\$m	725.0
Depreciation and amortisation	\$m	390.7
Other	\$m	1 905.8
<i>Total</i>	\$m	3 703.6
Operating profit or loss before tax	\$m	834.3
Operating profit margin	%	19.2
Industry value added	\$m	1 817.3

(a) Excludes public television broadcasting.  
 Source: Television, Film and Video Production and Post-production Services, Australia, 2006–07 (8679.0).

## 22.16 SUBSCRIPTION TELEVISION BROADCASTING—2006–07

Businesses at end June	no.	13
Employment at end June	no.	3 052
Income		
Subscription fees	\$m	1 974.9
Other(a)	\$m	307.6
<i>Total</i>	\$m	2 282.6
Expenses		
Wages and salaries	\$m	204.1
Payments to subscription television channel providers	\$m	843.6
Depreciation and amortisation	\$m	336.9
Rent, leasing and hiring	\$m	36.3
Other contract, subcontract and commission expenses	\$m	252.8
Other	\$m	775.8
<i>Total</i>	\$m	2 449.5
Operating profit before tax	\$m	-163.0
Operating profit margin	%	-7.7
Industry value added	\$m	333.5

(a) Includes gross income from the sale of airtime.  
 Source: Television, Film and Video Production and Post-production Services, Australia, 2006–07 (8679.0).

## Subscription television broadcasting

There were 13 subscription television broadcaster businesses, employing 3,052 people, at the end of June 2007 (table 22.16). These businesses

## 22.17 NOT-FOR-PROFIT ORGANISATIONS—2006–07

	Organisations at 30 June	Percentage of total			Volunteers during year ended 30 June	Total income	Total expenses	Operating surplus before tax	Industry value added
		Total employees at 30 June	not-for-profit sector employment	%					
	no.	no.	%	no.	\$m	\$m	\$m	\$m	
Culture and recreation	8 258	102 656	11.5	*575,600	13 197.9	12 342.6	*841.1	4 272.8	
Education and research	5 714	^218,388	24.5	^204,163	15 973.2	14 649.1	*1,330.1	^10,360.9	
Hospitals	102	55 652	6.3	6 557	5 348.8	5 205.5	^145.9	3 129.3	
Health	^794	99 665	11.2	^61,716	5 577.3	5 095.3	488.3	3 459.6	
Social services	^5,769	221 549	24.9	^255,305	^11,736.1	10 399.8	**1,252.1	6 695.6	
Environment, development, housing, employment(a)	7 302	110 482	12.4	*360,598	^10,530	^9,787.8	^742.1	3 838.3	
Religion	8 786	^40,744	4.6	^469,586	3 641.5	3 108.4	^509.7	1 295.1	
Business and professional associations, unions	2 047	^22,485	2.5	**55 734	^3,838.8	3 573.9	*264.7	^1,512.9	
Other activities	*2 236	^18,298	2.1	*193,217	6 110.2	5 860.2	**171.5	^1,287.9	
<b>Total</b>	<b>41 008</b>	<b>889 919</b>	<b>100.0</b>	<b>2 182 476</b>	<b>75 953.7</b>	<b>70 022.5</b>	<b>^5,745.5</b>	<b>35 852.3</b>	

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Includes law, philanthropic, international.

Source: Not-for-profit Organisations, Australia, 2006–07 (8106.0).

generated \$2,283m in income during 2006–07. Subscription fees were the main income source for these broadcasters (\$1,975m or 87%).

During 2006–07, the main expenses incurred by subscription television broadcasters were payments to subscription television channel providers (\$844m or 34% of total expenses), depreciation and amortisation costs (\$337m or 14%) and other contract, subcontract and commission expenses (\$253m or 10%). Total expenses were \$2,450m.

For subscription television broadcasting businesses, operating loss before tax was \$163m and their operating profit margin was -8%. Industry value added by these businesses was \$334m.

### Not-for-profit organisations

At 30 June 2007 there were 41,008 not-for-profit organisations in Australia (table 22.17). Religious organisations accounted for 21% (8,786) of all not-for-profit organisations, followed by Culture

and recreation organisations which accounted for 20% (8,258).

Not-for-profit organisations employed 889,919 people at 30 June 2007. Social services organisations accounted for 25% (221,549 people) of total employees, followed by Education and research organisations (25% or 218,388 people). In addition to paid employees, there were 2,182,476 volunteers during 2006–07.

During the 2006–07 financial year, not-for-profit organisations received \$76 billion (b) in income. The main source of income for these organisations was funding from federal, state and local government, which accounted for just over a third (34% or \$26b) of total income. This funding was primarily received by Education and research (32% or \$8b) and Social services (25% or \$6b) organisations. Over two-thirds (69% or \$18b) of total government funding to not-for-profit organisations was volume based funding (for example, granted on a per student or a per client basis).



Income from services accounted for 30% (\$23b) of total income. The majority of this income was earned by Culture and recreation organisations (28% or \$6b) and Education and research (24% or \$5b). Donations, sponsorship and fund raising accounted for 10% (\$7b) of total income and sales of goods 9% (\$7b).

During the 2006–07 financial year, not-for-profit organisations incurred \$70b in expenses. The

main expense incurred by these organisations was labour costs, which accounted for nearly half of total expenses (47% or \$33b). Education and research organisations accounted for 29% (\$10b) of total labour costs and Social services organisations 20% (\$6b).

Operating surplus before tax by these organisations for the 2006–07 financial year was \$6b and industry value added was \$36b.

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*Not-for-profit Organisations, Australia, 2006–07* (8106.0)



## TOURISM

Tourism comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited.

The term 'tourism' in the international standards is not restricted to leisure activity. It also includes short-term (less than one year) travel for business or other reasons such as education, provided the destination is outside the person's usual environment. Travel is a broader concept which includes commuting to a place of work, travel for business or leisure and migration.

This chapter outlines the value of tourism production, tourism consumption, international trade in tourism, and tourism employment. International visitor arrivals and Australian resident departures are covered, along with a range of data on visitor travel and tourist accommodation in Australia.

In 2007–08 the tourism industry share of Australia's gross domestic product was 4%.

The tourism industry employed 497,800 people in 2007–08.

In 2007–08, international visitors consumed over \$23 billion (b) worth of goods and services produced by the Australian economy.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Tourism industry

Tourism is not an industry in the conventional sense. In the *Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (1292.0)*, industries are defined on the basis of the primary goods and services which they produce. Tourism, however, is defined according to the status of the consumer. That is, it is the characteristics of the consumer that determine whether the production is included within the scope of tourism. For example, expenditure on a restaurant meal by a visitor contributes to tourism's share of the economy, whereas expenditure by a local resident does not.

Visitors, in purchasing products outside of their usual environment, have a positive economic impact on their destination by generating additional consumption at the destination over

and above that generated by the resident consumers. This additional consumption provides the basis for the economic activity generated by tourism.

Visitors can be classified into national (domestic) and international visitors. National visitors consist of Australian residents who travel outside their usual environment within Australia. They include both overnight visitors (staying one or more nights at a location) and same day visitors. International visitors are those persons who travel to a country other than that in which they have their usual residence.

The contribution of an industry to the overall production of goods and services in an economy, gross domestic product (GDP), is measured by gross value added (GVA). Information on the relationship between industry GVA and GDP is

### 23.1 TOURISM SHARE OF GROSS VALUE ADDED AND GROSS DOMESTIC PRODUCT

		2003-04	2004-05	2005-06	2006-07	2007-08
Tourism characteristic industries GVA(a)						
Travel agency and tour operator services	\$m	1 245	1 235	1 329	1 421	1 465
Taxi transport	\$m	253	245	284	340	335
Air and water transport	\$m	3 632	3 734	3 884	4 156	4 241
Motor vehicle hiring	\$m	554	610	676	832	735
Accommodation	\$m	3 704	3 785	4 068	4 547	4 985
Cafes, restaurants and food outlets	\$m	2 849	2 879	2 984	3 143	3 373
<i>Total</i>	\$m	12 237	12 488	13 225	14 439	15 135
GVA of tourism connected industries(b)	\$m	13 256	13 286	13 682	14 755	15 453
GVA of all other industries(c)	\$m	3 172	3 005	3 038	3 102	3 145
Tourism GVA	\$m	28 665	28 779	29 944	32 296	33 733
Tourism share of GVA	%	3.7	3.5	3.4	3.4	3.2
Net taxes on tourism products	\$m	5 817	5 855	6 187	6 629	6 907
Tourism GDP	\$m	34 483	34 634	36 131	38 925	40 639
Tourism share of GDP	%	4.1	3.9	3.7	3.7	3.6

(a) Tourism characteristic industries have at least 25% of their output consumed by visitors.

(b) Tourism connected industries are those industries not classified as characteristic that have products which are consumed by visitors in volumes which are significant.

(c) The share of GVA of all industries that provide outputs to visitors not included in characteristic or connected industries.

Source: Australian National Accounts, Tourism Satellite Account (5249.0).

### 23.2 TOURISM INDUSTRY EMPLOYMENT

		2003-04	2004-05	2005-06	2006-07	2007-08
Tourism characteristic and connected industries(a)	'000	425.0	433.8	438.4	441.9	456.1
All other industries(b)	'000	36.6	38.0	39.3	41.0	41.7
Total tourism industry	'000	461.6	471.7	477.7	482.8	497.8
Total employed persons	'000	9 528.0	9 800.1	10 042.2	10 304.9	10 578.7
Tourism share of total employment	%	4.8	4.8	4.8	4.7	4.7

(a) Tourism characteristic and connected industries are those industries that have products which are consumed by visitors in volumes which are significant.

(b) The share of GVA of all industries that provide outputs to visitors not included in characteristic or connected industries.

Source: Australian National Accounts, Tourism Satellite Account (5249.0).

### 23.3 SHARE OF TOURISM CONSUMPTION ON SELECTED TOURISM PRODUCTS, By type of visitor—2007–08

	Households	Business/government	International	All visitors
	%	%	%	%
Long-distance passenger transportation	8.4	32.8	23.1	15.4
Shopping (including gifts and souvenirs)	18.5	0.1	10.9	14.1
Take away and restaurant meals	17.7	15.2	8.7	15.0
Accommodation services	8.7	17.8	14.5	11.4
Food products	9.9	2.5	7.4	8.3
Fuel (petrol, diesel)	8.3	14.5	1.6	7.3
Taxi fares	0.4	3.3	1.1	1.0
All other tourism products	28.1	13.8	32.7	27.5

Source: Australian National Accounts, Tourism Satellite Account (5249.0).

provided in the *Industry structure and performance* chapter. A Tourism Satellite Account (TSA) is recognised internationally as the best method for measuring the economic contribution of tourism. Tourism GVA and GDP are the major economic aggregates derived in the TSA.

The tourism industry share of total GVA in 2007–08 was 3% (table 23.1). This share has declined from a peak of 4% in 2000–01.

The tourism industry employed 497,800 people in 2007–08 (table 23.2). The number of tourism employed persons grew 8% between 2003–04 and 2007–08, slower than the growth in total employed persons (11%) over that period. Consequently, the tourism share of total employed persons has fallen between 2003–04 and 2007–08.

Tourism consumption is defined as:

'...the total consumption made by a visitor or on behalf of a visitor for and during his/her trip and stay at the destination' (Explanatory Notes, *Australian National Accounts: Tourism Satellite Account* (5249.0)).

In 2007–08 tourism consumption was largest for long-distance passenger transportation and takeaway and restaurant meals (both 15%), followed by shopping (including gifts and souvenirs) with 14%, and accommodation services (11%) (table 23.3).

However, there are some marked differences in consumption patterns by type of visitor. Long-distance passenger transportation is the dominant tourism product consumed by domestic business/government (33%) and international visitors (23%). In contrast, domestic household visitor consumption is dominated by expenditure on shopping (including gifts and souvenirs) (19%) and takeaway and restaurant meals (18%).

International visitor consumption increased by 6% between 2006–07 and 2007–08 while total exports rose by 8% over the same period (table 23.4). Growth in international visitor consumption was strongest during 2006–07. In 2007–08, these visitors consumed \$24 billion worth of goods and services produced by the Australian economy, representing 10% of the total exports of goods and services.

### 23.4 EXPORTS OF TOURISM GOODS AND SERVICES

		2003–04	2004–05	2005–06	2006–07	2007–08
International visitor consumption(a)	\$m	19 592	19 560	20 349	22 246	23 593
Total exports(b)	\$m	147 219	167 562	196 274	215 695	233 853
Tourism share of exports	%	13.3	11.7	10.4	10.3	10.1
Growth in international visitor consumption(c)	%	7.4	-0.2	4.0	9.3	6.1
Growth in total exports(c)	%	-3.0	13.8	17.1	9.9	8.4

(a) Australian National Accounts, Tourism Satellite Account (5249.0).

(b) Balance of Payments and International Investment Position, Australia (5302.0).

(c) There are some conceptual differences between 5249.0 and 5302.0. See the explanatory notes in 5249.0 for further details.

Source: Australian National Accounts, Tourism Satellite Account (5249.0).

## International visitor arrivals

There were 6 million short-term international visitor arrivals in 2008, compared with 4 million such arrivals in 1998 (graph 23.5).

External events such as terrorism and the Severe Acute Respiratory Syndrome scare coincided with the decrease in arrivals between 2001 and 2003.

Major source countries for short-term international visitor arrivals to Australia during 2008 were New Zealand (1,113,400 visitor arrivals), the United Kingdom, Channel Islands & Isle of Man (672,200), Japan (457,300) and the United States of America (454,500) (table 23.6).

Between 2007 and 2008 the number of short-term international visitor arrivals from Japan fell by 115,600, while visitor arrivals from Korea fell by 34,900, New Zealand arrivals fell by 24,600, and visitor arrivals from the United Kingdom, Channel Islands and Isle of Man fell by 16,900. Visitor

arrivals from Malaysia rose by 11,600, from Germany by 9,200 and from Singapore by 7,000.

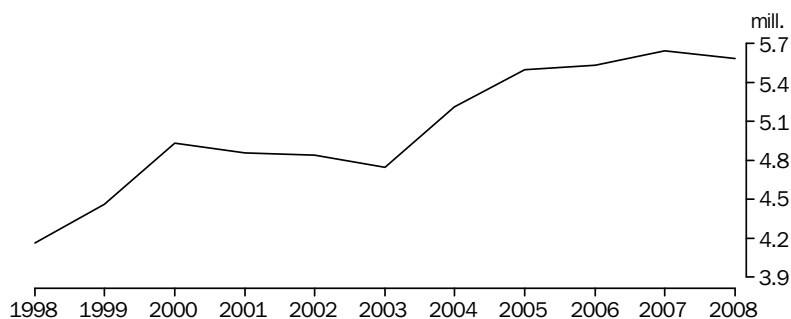
In 2008 people whose main purpose for their trip was a holiday accounted for the highest share (48%) and employment accounted for the lowest share (3%) of short-term international visitor arrivals to Australia (graph 23.7).

December recorded the highest number of visitor arrivals (11% of total arrivals) in 2008, while May and June recorded the lowest (7%) (graph 23.8).

International visitor nights refers to the number of nights all international visitors aged 15 years and over spent in Australia. In 2008, international visitors in Australia spent the most nights in New South Wales (58 million or 35%), followed by Queensland (41 million or 24%) and Victoria (34 million or 20%) (graph 23.9).

Of all international visitors in 2008, nights spent in Australia by those who travelled for holiday

**23.5 SHORT-TERM MOVEMENTS(a), International visitor arrivals**



(a) Statistics on arrivals relate to the number of movements of travellers rather than the number of travellers. Multiple movements of travellers in a given year are counted separately.

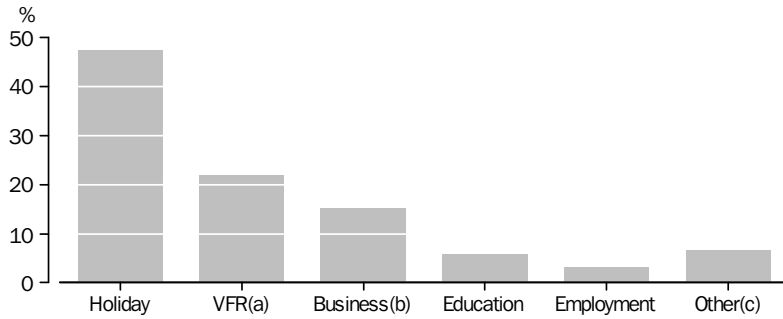
Source: *Overseas Arrivals and Departures, Australia* (3401.0).

**23.6 SHORT-TERM INTERNATIONAL VISITOR ARRIVALS, By major source countries**

	2004	2005	2006	2007	2008
New Zealand	1 032.8	1 098.8	1 075.7	1 138.0	1 113.4
United Kingdom, Channel Islands & Isle of Man	676.2	708.7	734.2	688.9	672.0
Japan	710.3	685.2	650.9	572.9	457.3
United States of America	433.5	446.2	456.0	459.7	454.5
China (excl. SARs and Taiwan Province)	251.2	285.0	308.5	357.4	356.5
Singapore	251.1	265.9	253.3	263.8	270.8
Korea, Republic of (South)	211.8	250.5	260.9	253.2	218.3
Malaysia	166.9	166.0	150.3	159.5	171.1
Germany	140.5	146.6	148.3	151.5	160.7
Hong Kong (SAR of China)	137.2	159.5	154.6	146.9	143.9

Source: *Overseas Arrivals and Departures, Australia* (3401.0).

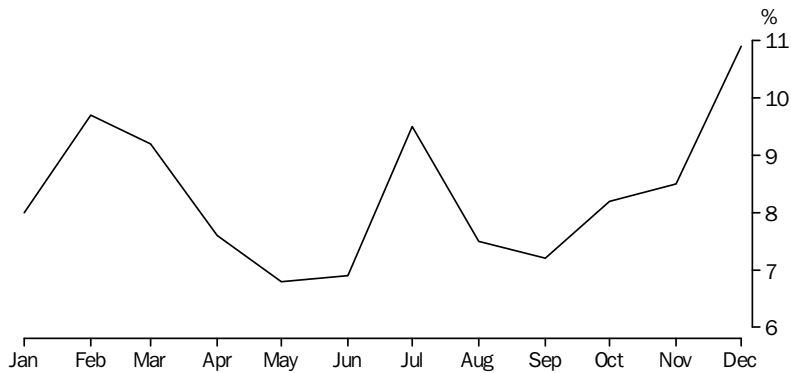
**23.7 INTERNATIONAL VISITOR ARRIVALS, By main purpose of trip—2008**



(a) Visiting friends and relatives. (b) Includes visitors who attended a convention or conference. (c) Includes visitors who did not state a purpose.

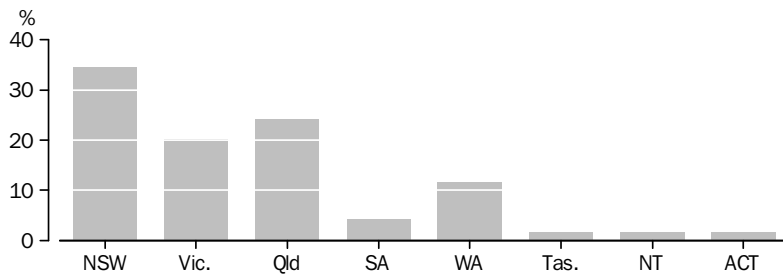
Source: *Overseas Arrivals and Departures, Australia (3401.0)*.

**23.8 INTERNATIONAL VISITOR ARRIVALS, By month of visit—2008**



Source: *Overseas Arrivals and Departures, Australia (3401.0)*.

**23.9 SHORT-TERM INTERNATIONAL VISITOR NIGHTS(a)(b)—2008**

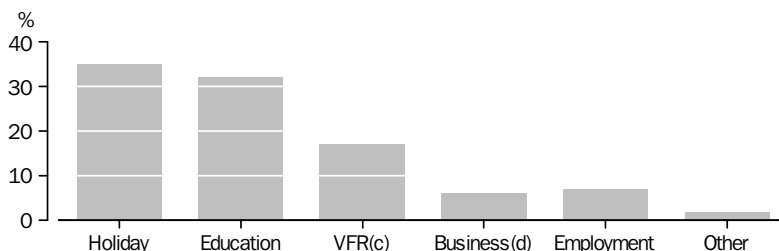


(a) All visitors aged 15 years and over. Includes backpackers. (b) Total nights are less than visitor nights in Australia because nights spent in transit are excluded.

Source: *Tourism Research Australia, 2009, 'International Visitors in Australia', December quarter 2008, Tourism Australia, Canberra.*



**23.10 SHORT-TERM INTERNATIONAL VISITOR NIGHTS(a)(b),  
By main purpose of trip—2008**



(a) All visitors aged 15 years and over. Includes backpackers. (b) Total nights are less than visitor nights because nights spent in transit are excluded. (c) Visiting friends and relatives. (d) Includes visitors who attended a convention or conference.

Source: *Tourism Research Australia, 2009, 'International Visitors in Australia', December quarter 2008, Tourism Australia, Canberra.*

purposes accounted for 35% of short-term international visitor nights; 32% were for educational purposes; 17% of nights were to visit friends and relatives; and 6% were for business purposes (graph 23.10).

**Australian resident departures**

In the year ended December 2008 there was a record 5.8 million short-term resident departures (graph 23.11), the highest number of resident departures ever recorded for a calendar year.

The top destinations for Australian residents departing short term during 2008 were New Zealand (921,100 departures), the United States of America (492,300), the United Kingdom,

Channel Islands & Isle of Man (420,300), Thailand (404,100) and Indonesia (380,700) (table 23.12).

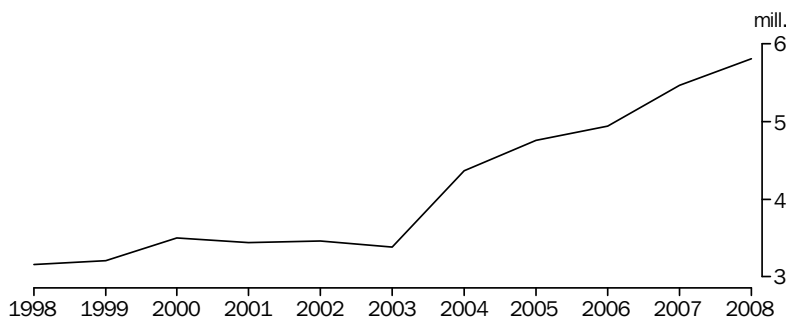
Between 2007 and 2008 the number of short-term resident departures to Indonesia increased by 35%, and to Fiji by 18%. Short-term departures to China fell by 3%, from 284,300 to 277,300.

**Visitor travel in Australia**

**Day visitors**

Day visitors are those who travel for a round trip distance of at least 50 kilometres, are away from home for at least four hours, and who do not spend a night away from home as part of their travel. Same-day travel as part of overnight travel

**23.11 SHORT-TERM MOVEMENTS(a), Resident departures**



(a) Statistics on departures relate to the number of movements of travellers rather than the number of travellers. Multiple movements of travellers in a given year are counted separately.

Source: *Overseas Arrivals and Departures, Australia (3401.0).*

### 23.12 SHORT-TERM RESIDENT DEPARTURES, By major destinations

	2004	2005	2006	2007	2008
	'000	'000	'000	'000	'000
New Zealand	815.8	835.7	864.7	902.1	921.1
United States of America	376.0	426.4	440.3	479.1	492.3
United Kingdom, Channel Islands and Isle of Man	375.1	404.4	412.8	428.5	420.3
Thailand	188.0	202.9	288.0	374.4	404.1
Indonesia	335.2	319.9	194.9	282.6	380.7
China (excl. SARs and Taiwan Province)	182.0	235.0	251.0	284.3	277.3
Fiji	175.2	196.9	202.4	200.3	236.2
Singapore	158.9	188.5	210.9	221.5	217.8
Hong Kong (SAR of China)	152.6	185.7	196.3	206.5	213.1
Malaysia	144.3	160.0	168.0	181.3	191.0

Source: Overseas Arrivals and Departures, Australia (3401.0).

is excluded, as is routine travel such as commuting between work, school and home.

During the year ended 31 December 2008, there were 136 million day visitors in Australia, by Australian residents aged 15 years and over, a

decrease of 12.1 million day visitors from 148 million day visitors in 2007 (table 23.13).

In 2008, 52% of day trips were for holiday/leisure purposes, 29% were to visit friends and/or relatives and 10% were for business purposes (graph 23.14).

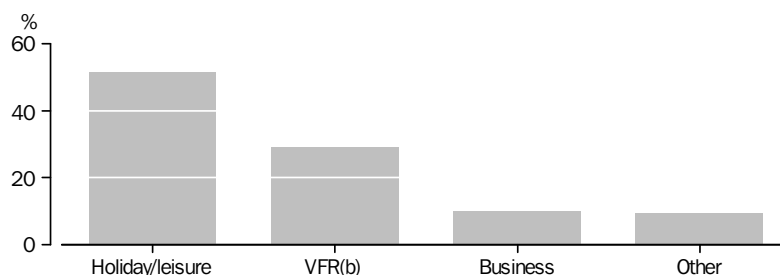
### 23.13 DAY VISITORS(a), By state/territory visited

	DESTINATION								
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.(b)
	'000	'000	'000	'000	'000	'000	'000	'000	'000
2004	40 505	30 655	30 938	9 735	11 448	3 958	908	1 422	129 568
2005	41 782	31 604	28 497	9 707	12 079	4 117	904	1 428	130 120
2006	44 229	32 158	28 422	10 463	12 455	4 417	967	1 351	134 464
2007	48 472	36 074	31 614	10 571	13 762	4 608	956	1 680	147 737
2008	44 262	34 592	28 558	9 571	12 140	4 170	940	1 410	135 642

- (a) Australian residents aged 15 years and over.  
 (b) Components may not add to total as total includes unspecified and offshore visits that could not be allocated to a state or territory.

Source: Tourism Research Australia, 2009, *Travel by Australians*, December quarter 2008, Tourism Australia, Canberra.

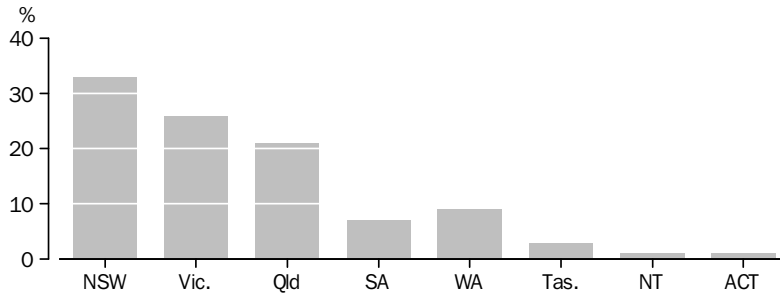
### 23.14 DAY VISITORS(a), By main purpose of visit—2008



(a) Australian residents aged 15 years and over. (b) Visiting friends and relatives.

Source: Tourism Research Australia, 2009, *Travel by Australians*, December quarter 2008, Tourism Australia, Canberra.

### 23.15 DAY VISITORS(a), By state/territory visited—2008



(a) Australian residents aged 15 years and over.

Source: Tourism Research Australia, 2009, *Travel by Australians*, December quarter 2008, Tourism Australia, Canberra.

In 2008, New South Wales received the most day visitors (33%), followed by Victoria (26%) and Queensland (21%) (graph 23.15).

In 2008, overnight visitors spent the highest proportion of nights in New South Wales (30%), followed by Queensland (27%) and Victoria (19%) (graph 23.18).

### Visitor nights

Domestic overnight travel involves a stay away from home for at least one night, at a place at least 40 kilometres from home. A person is an overnight visitor to a location if they stay one or more nights in the location while travelling.

Australians spent 272 million nights away from home during 2008 (table 23.16), a decrease of 6% compared with 2007.

Overnight travellers who had holiday or leisure as their main purpose of visit accounted for the majority of domestic visitor nights in 2008 (49%), followed by those travelling to visit friends and/or relatives (31%) and for business purposes (15%) (graph 23.17).

### Tourist accommodation

At 31 December 2008 there were 223,319 guest rooms available in hotels, motels, guest houses and serviced apartments (table 23.19), representing an increase of 2% compared with 31 December 2007. Between 2007 and 2008 the number of guest rooms available in serviced apartments increased by 8%, by 1% in licensed hotels, and by less than 1% in motels and guest houses.

The room occupancy rate for licensed hotels with facilities, motels, and guest houses and serviced apartments combined decreased slightly from 66% in 2007 to 64% in 2008. In 2004 the room occupancy rate was 62%.

### 23.16 VISITOR NIGHTS(a), By state/territory visited

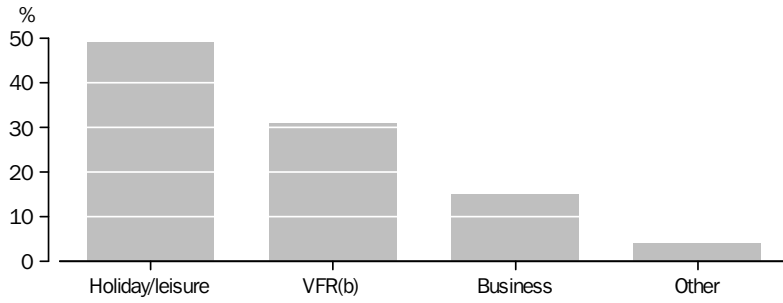
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust. (b)
	'000	'000	'000	'000	'000	'000	'000	'000	'000
2004	89 179	54 872	78 196	21 680	31 002	10 263	6 522	5 107	296 877
2005	82 450	51 119	74 872	18 653	28 422	8 550	6 329	5 400	275 859
2006	86 197	53 452	75 210	19 075	29 671	9 434	6 877	5 612	285 661
2007	83 176	53 244	77 069	19 107	32 684	10 219	7 159	5 844	288 603
2008	81 644	52 070	72 187	18 654	26 914	8 433	6 579	5 222	271 778

(a) Australian residents aged 15 years and over.

(b) Total includes unspecified and offshore visits that could not be allocated to a state or territory.

Source: Tourism Research Australia, 2009, *Travel by Australians*, December quarter 2008, Tourism Australia, Canberra.

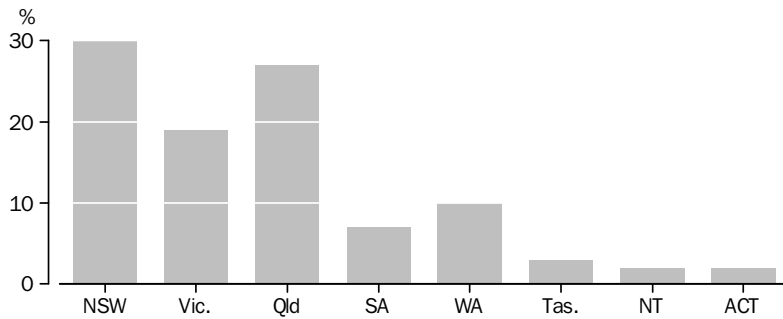
**23.17 VISITOR NIGHTS(a), By main purpose of visit—2008**



(a) Australian residents aged 15 years and over. (b) Visiting friends and relatives.

Source: *Tourism Research Australia, 2009, 'Travel by Australians', December quarter 2008, Tourism Australia, Canberra.*

**23.18 VISITOR NIGHTS(a), By state/territory visited—2008**



(a) Australian residents aged 15 years and over.

Source: *Tourism Research Australia, 2009, 'Travel by Australians', December quarter 2008, Tourism Australia, Canberra.*

### 23.19 HOTELS, MOTELS AND SERVICED APARTMENTS(a)

		2004	2005	2006	2007	2008
<b>LICENSED HOTELS WITH FACILITIES (b)</b>						
Establishments(c)	no.	786	812	823	833	845
Guest rooms(c)	no.	78 574	80 134	80 560	81 372	82 483
Bed spaces(c)	no.	205 304	206 756	212 826	213 005	215 884
Room occupancy rates(d)	%	67.4	68.5	69.8	71.0	69.1
Bed occupancy rates(d)	%	42.7	43.0	43.1	43.5	42.2
Takings from accommodation(d)	\$m	2 790.4	3 011.1	3 297.5	3 594.6	3 747.3
<b>MOTELS AND GUEST HOUSES WITH FACILITIES (b)</b>						
Establishments(c)	no.	2 390	2 485	2 479	2 484	2 475
Guest rooms(c)	no.	85 185	86 798	86 859	87 683	87 718
Bed spaces(c)	no.	246 227	249 385	250 488	251 945	250 123
Room occupancy rates(d)	%	54.6	55.9	57.4	58.6	58.2
Bed occupancy rates(d)	%	33.4	33.8	34.2	34.7	34.4
Takings from accommodation(d)	\$m	1 585.7	1 710.2	1 841.6	2 002.5	2 109.3
<b>SERVICED APARTMENTS (b)</b>						
Establishments(c)	no.	797	872	893	918	957
Guest rooms(c)	no.	41 736	45 852	47 753	49 262	53 118
Bed spaces(c)	no.	134 686	147 051	155 806	159 801	171 140
Room occupancy rates(d)	%	66.7	67.1	67.9	69.2	67.2
Bed occupancy rates(d)	%	45.7	45.5	44.3	44.8	43.2
Takings from accommodation(d)	\$m	1 298.7	1 468.2	1 643.7	1 845.5	2 040.3
<b>TOTAL HOTELS, MOTELS AND SERVICED APARTMENTS (b)</b>						
Establishments(c)	no.	3 973	4 169	4 195	4 235	4 277
Guest rooms(c)	no.	205 495	212 784	215 172	218 317	223 319
Bed spaces(c)	no.	586 217	603 192	619 120	624 751	637 147
Room occupancy rates(d)	%	62.0	63.1	64.3	65.6	64.4
Bed occupancy rates(d)	%	39.5	39.8	39.7	40.3	39.4
Room nights occupied(d)	'000	46 306.5	48 262.4	49 965.0	51 702.1	52 005.7
Takings from accommodation(d)	\$m	5 674.8	6 189.5	6 782.8	7 442.7	7 896.9

(a) Comprising establishments with 15 or more rooms or units.

(b) For definitions see the source below.

(c) At 31 December.

(d) Twelve months ended December.

Source: Tourist Accommodation, Australia (8635.0).

## **Bibliography**

### **ABS products**

*Australian National Accounts: Tourism Satellite Account* (5249.0)

*Overseas Arrivals and Departures, Australia* (3401.0)

*Tourism Accommodation, Australia* (8635.0)

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## TRANSPORT

Transport activity involves the movement of goods or people from an origin to a destination.

Transport is a fundamental element of developed economies, connecting businesses to markets and to supplies of inputs. For example, building construction is reliant on transport to get materials and labour to sites. Retailers rely on transport to bring items from suppliers, and to bring customers to their shops. Complex and specialised transport services, such as those used for perishable foods, may cross several countries and include corridors of road, rail, sea and air journeys. A substantial part of people's time and income is used for travel to work, school, recreation, and other activities.

Transport activity has considerable economic, social and environmental impacts. Effective transport systems contribute to economic prosperity, as well as to the social achievements of the community that arise through access to an enlarged range of employment and residential options, and to an increased range of holiday and entertainment options. Information about numerous aspects of transport activity is used by governments, local authorities and industry, to support planning and investment decisions.

In 2007–08 the transport and storage industry's share of the total production of goods and services in the Australian economy was 5%.

This chapter provides information on Australia's domestic and international transportation system, including statistics on transport activity and the incidence of transport-related accidents, injuries and fatalities. Data are drawn from Australian Bureau of Statistics (ABS) collections and other sources, including the Department of Infrastructure, Transport, Regional Development and Local Government, Australian Transport Safety Bureau, Civil Aviation Safety Authority, Bureau of Infrastructure, Transport and Regional Economics and the Australasian Railway Association Inc.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Transport and storage industry

Transport and storage are vital to the Australian economy, underpinning a diverse range of industries and activities. These range from transporting and storing freight, to the movement of people by private and public transport, to vehicle hire and the use of pipelines.

The contribution of an industry to the overall production of goods and services in an economy, gross domestic product (GDP), is measured by gross value added (GVA). Information on the relationship between industry GVA and GDP is provided in the *Industry structure and performance* chapter.

Table 24.1 shows the GVA (in volume terms) for each industry subdivision (as defined in the *Australian and New Zealand Standard*

*Industrial Classification (ANZSIC), 1993* (1292.0.15.001)) within the transport and storage industry. Between 2006–07 and 2007–08, transport and storage industry GVA rose by 6%.

All industry subdivisions had increases in GVA (in volume terms) between 2006–07 and 2007–08. Transport services and storage (which includes water transport) and road transport recorded the greatest increases in GVA (both 7%), followed by rail, pipeline and other transport (5%) and air and space transport (3%).

Table 24.2 shows employment for the transport, postal and warehousing industry (as defined in the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition (1292.0)). Between 2007–08 and 2008–09 transport, postal and warehousing total employment increased from 550,700 to 589,900 people. Rail transport employment rose by 15,700 (52%), transport support services increased 16,700 (35%) and postal and courier pick-up and delivery services rose 12,200 (13%). Over the same period, employment in other transport decreased by 39% to 9,800 people, and water transport employment decreased by 23% to 8,600 people.

In 2007–08 the transport, postal and warehousing industry generated \$123,153 million (m) in sales and service income (table 24.3). Capital expenditure in 2007–08 was \$24,468m, and industry value added \$53,561m. Operating profit before tax was \$15,746m while the profit margin for the industry was 13% in 2007–08. The majority

### 24.1 TRANSPORT AND STORAGE INDUSTRY(a), Gross value added(b)

ANZSIC Subdivision	2006–07	2007–08
	\$m	\$m
Road transport	16 908	18 015
Air and space transport	6 366	6 568
Rail, pipeline and other transport	6 885	7 203
Transport services and storage(c)	18 250	19 508
<b>Total transport and storage</b>	<b>48 409</b>	<b>51 294</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 edition.

(b) Volume measures. Reference year is 2006–07.

(c) Includes water transport.

Source: Australian System of National Accounts (5204.0).

### 24.2 TRANSPORT, POSTAL AND WAREHOUSING INDUSTRY(a), Employment(b)

ANZSIC Subdivision	2007–08	2008–09
	'000	'000
Road transport	239.1	243.9
Rail transport	30.5	46.2
Water transport	11.2	8.6
Air and space transport	47.7	52.3
Other transport	16.0	9.8
Postal and courier pick-up and delivery services	91.4	103.6
Transport support services	47.4	64.2
Warehousing and storage services	52.7	47.3
Transport, postal and warehousing n.f.d.(c)	14.6	14.0
<b>Total transport, postal and warehousing</b>	<b>550.7</b>	<b>589.9</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.

(b) Annual average of quarterly data.

(c) Not further defined. Insufficient detail collected from survey respondent to allocate data to a specific industry code.

Source: Labour Force, Australia, Detailed, Quarterly (6291.0.55.003).

### 24.3 TRANSPORT, POSTAL AND WAREHOUSING INDUSTRY, Selected indicators

		2006-07	2007-08
Sales and service income(a)	\$m	112 615	123 153
Operating profit before tax	\$m	14 687	^ 15 746
Capital expenditure(b)	\$m	17 992	^ 24,468
Industry value added	\$m	49 639	53 561
Profit margin	%	13	13
Business profitability			
Businesses that made a profit	%	80	84
Businesses that broke even	%	2	2
Businesses that made a loss	%	18	14

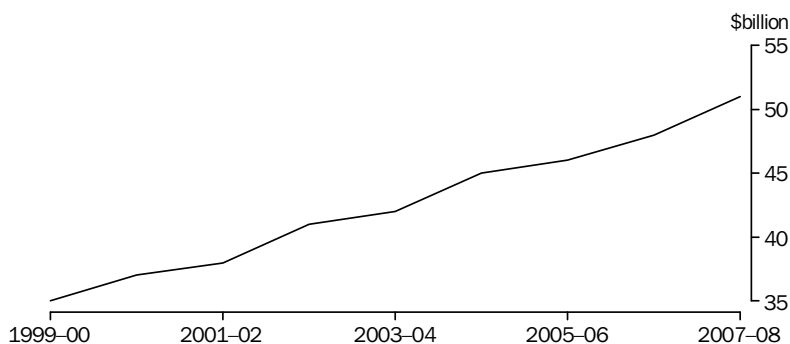
^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

(a) Includes rent, leasing and hiring income.

(b) Includes capital work done for own use.

Source: Australian Industry (8155.0).

### 24.4 TRANSPORT AND STORAGE PRODUCTION(a)(b)



(a) Industry gross value added. (b) Volume measures. Reference year is 2006-07.

Source: Australian System of National Accounts (5204.0).

### 24.5 TRANSPORT AND STORAGE INDUSTRY, Selected performance measures—2007-08

#### ANZSIC SUBDIVISION

Selected indicators	ANZSIC SUBDIVISION							Total	
	Road transport	Rail transport	Water transport	Air and space transport	Postal and courier pick-up and delivery services	Transport support services	Warehousing and storage services		
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	
Wages and salaries	10 570	2 565	537	3 285	361	2 762	4 796	1 204	26 080
Total income	47 597	9 668	2 850	20 641	2 757	10 140	34 233	6 715	134 601
Total expenses	42 744	9 151	2 650	18 981	2 378	8 686	28 079	6 376	119 045
Operating profit before tax	^ 4 873	515	**207	1 698	^ 386	^ 1,454	^ 6,199	^ 413	^ 15,746

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use  
Source: Australian Industry (8155.0).

of businesses made a profit in 2007–08 (84%), while 14% made a loss.

Transport and storage industry production (in volume terms) increased by almost half (46%) between 1999–2000 and 2007–08 (graph 24.4).

Wages and salaries for the transport, postal and warehousing industry in 2007–08 were \$26,080m. Total income was \$134,601m, total expenses \$119,045m, while operating profit before tax was \$15,746m (table 24.5). Road transport was the largest component industry, with 41% of the industry's wages and salaries, 31% of operating profit before tax, 35% of total income and 36% of total expenses.

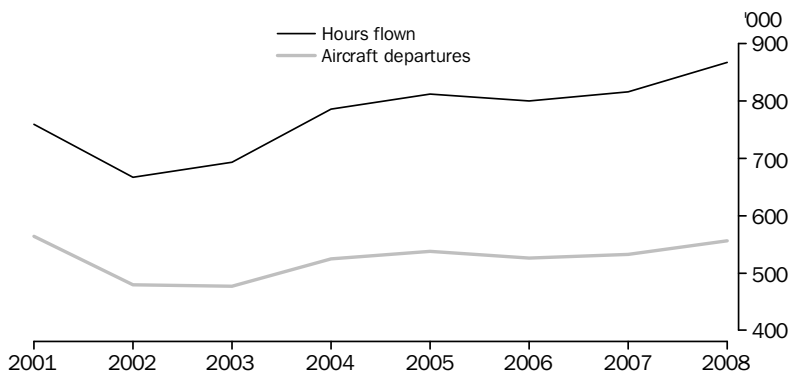
## Transport activity

### Domestic airline activity

The total hours flown and the number of aircraft departures by the major domestic and regional airlines are shown in graph 24.6. In 2008 there were 868,000 hours flown, while aircraft departures totalled 556,000.

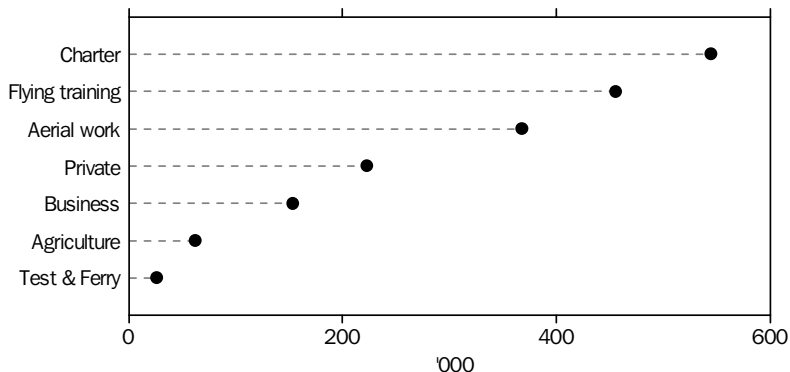
In addition to domestic and regional scheduled services, activities undertaken by the general aviation industry include private and business flying, agriculture, charter, training and test and ferry flying (graph 24.7). Charter, flying training and aerial work activity accounted for 75% of general aviation hours flown in 2007. Aerial work includes all survey and photography, spotting, stock mustering, search and rescue, ambulance, towing (including glider, target and banner

**24.6 DOMESTIC AIRLINE ACTIVITY, Major and regional airlines**



Source: Bureau of Infrastructure, Transport and Regional Economics.

**24.7 GENERAL AVIATION ACTIVITY, Hours flown—2007**



Source: Bureau of Infrastructure, Transport and Regional Economics.

towing) and other aerial work (including advertising, cloud seeding, fire fighting and coastal surveillance). Test and ferry flying is associated with the testing of an aircraft or associated with its delivery or movement to a location for maintenance, hire or other planned use. It accounted for 1% of hours flown in 2007.

## Road transport activity

Motor vehicles travelled an estimated total distance of 215,171 million kilometres (km) in the year ended 31 October 2007, at an average of 15,300 km per vehicle (table 24.8). Business use accounted for an estimated 34% of aggregate distance travelled, and private use 66%. Of total private use travel, 37% consisted of travel to and from work, and 63% for personal and other use travel.

The localities in which motor vehicles travelled are described in table 24.9. Only 5% of total distance travelled represented interstate trips, while 56% of trips were within the capital city of

the state or territory in which the vehicle was registered.

Registered motor vehicles in Australia consumed 30,047 million litres of fuel in the 12 months ended 31 October 2007 (table 24.10). Of the total fuel consumed by motor vehicles in this period, 63% was petrol and 31% was diesel.

Passenger vehicles used 15,910 million litres of petrol in the 12 months ended 31 October 2007. This was 88% of all fuel used by passenger vehicles.

A total of 6,206 million litres of diesel was used by articulated and rigid trucks. This was 66% of all diesel used. Light commercial vehicles used 1,687 million litres which was 18% of all diesel.

The average rate of fuel consumption for all motor vehicles in the 12 months ended 31 October 2007 was 14.0 litres per 100 kilometres. Articulated trucks had the highest average fuel consumption with 54.6 litres per 100 kilometres, followed by rigid trucks with 28.5 litres per 100

### 24.8 BUSINESS AND PRIVATE VEHICLE USE—Year ended 31 October 2007

Type of vehicle	BUSINESS			PRIVATE		Total
	Laden	Unladen	Total(a)	To and from work	Personal and other use	
<b>TOTAL DISTANCE TRAVELLED (mill. km)</b>						
Passenger vehicles	—	—	31 902	45 257	80 769	157 928
Motor cycles	—	—	^ 206	^ 444	^ 1 254	1 905
Light commercial vehicles	17 400	6 491	23 891	6 742	6 752	37 385
Rigid trucks	5 816	2 526	8 342	^ 136	^ 166	8 644
Articulated trucks	5 122	1 798	6 920	^ 7	^ 2	6 929
Non-freight carrying trucks	—	—	^ 283	**—	**—	^ 283
Buses	—	—	2 003	^ 22	^ 73	2 097
<b>Total</b>	<b>28 338</b>	<b>10 816</b>	<b>73 548</b>	<b>52 607</b>	<b>89 016</b>	<b>215 171</b>
<b>AVERAGE DISTANCE TRAVELLED ('000 km) (b)</b>						
Passenger vehicles	—	—	8.9	7.6	8.3	14.3
Motor cycles	—	—	^ 2.9	^ 3.3	^ 3.9	5.0
Light commercial vehicles	14.4	8.5	18.7	8.4	5.9	18.1
Rigid trucks	17.5	9.8	24.8	^ 4.3	^ 4.7	24.3
Articulated trucks	73.8	30.2	98.8	^ 3.7	* 2.2	98.1
Non-freight carrying trucks	—	—	^ 15.3	** 0.8	** 0.3	^ 15.2
Buses	—	—	33.4	^ 4.6	^ 9.3	32.4
<b>Total</b>	<b>17.6</b>	<b>10.0</b>	<b>13.6</b>	<b>7.6</b>	<b>7.9</b>	<b>15.3</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution  
 \* estimate has a relative standard error of 25% to 50% and should be used with caution  
 \*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)  
 (a) Includes business travel of non-freight carrying vehicles.  
 (b) Average distance travelled for registered vehicles which were used.  
 Source: Survey of Motor Vehicle Use, Australia (9208.0).

## 24.9 LOCATION OF VEHICLE OPERATION—Year ended 31 October 2007

Type of vehicle	WITHIN STATE/TERRITORY OF REGISTRATION					
	Capital city	Provincial urban	Other areas of state/territory	Total	Interstate	Australia
TOTAL DISTANCE TRAVELLED (mill. km)						
Passenger vehicles	94 976	30 799	26 476	152 250	^ 5,677	157 928
Motor cycles	^ 830	^ 481	^ 520	1 831	*74	1 905
Light commercial vehicles	18 067	6 803	10 959	35 829	^ 1,556	37 385
Rigid trucks	4 383	1 328	2 472	8 183	^ 461	8 644
Articulated trucks	1 302	557	3 275	5 135	1 795	6 929
Non-freight carrying trucks	^ 139	^ 37	^ 82	^ 258	**25	^ 283
Buses	1 029	^ 396	574	1 999	*98	2 097
<b>Total</b>	<b>120 727</b>	<b>40 400</b>	<b>44 358</b>	<b>205 485</b>	<b>9 686</b>	<b>215 171</b>
AVERAGE DISTANCE TRAVELLED ('000 km) (a)						
Passenger vehicles	11.8	7.8	8.1	13.8	^ 6.4	14.3
Motor cycles	3.7	^ 4.0	^ 3.7	4.8	^ 3.5	5.0
Light commercial vehicles	15.5	8.7	12.6	17.6	^ 10.1	18.1
Rigid trucks	23.2	11.8	15.7	23.2	^ 20.6	24.3
Articulated trucks	30.0	18.8	65.2	74.4	85.3	98.1
Non-freight carrying trucks	^ 17.7	^ 8.8	^ 9.5	14.2	**27.6	^ 15.2
Buses	29.3	21.9	22.4	31.2	^ 21.9	32.4
<b>Total</b>	<b>12.4</b>	<b>8.0</b>	<b>9.8</b>	<b>14.7</b>	<b>8.7</b>	<b>15.3</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution  
 \* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Average distance travelled for registered vehicles which were used.

Source: Survey of Motor Vehicle Use, Australia (9208.0).

## 24.10 MOTOR VEHICLE FUEL CONSUMPTION—Year ended 13 October 2007

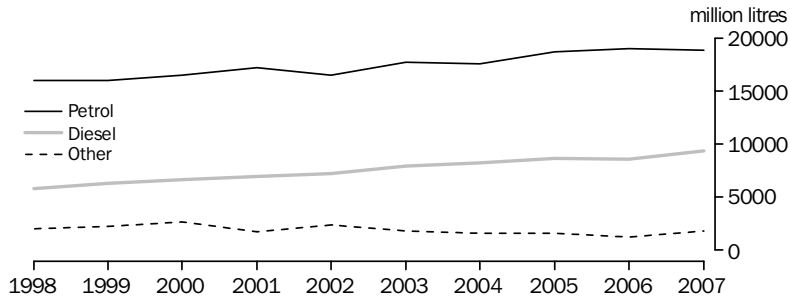
Type of fuel	TYPE OF VEHICLE							Total
	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non-freight carrying trucks	Buses	
TOTAL FUEL CONSUMPTION (MILLION LITRES)								
Petrol	15 910	^ 124	2 780	^ 25	—	*5	^ 32	18 876
Diesel	^ 888	—	1 687	2 425	3 781	^ 72	519	9 372
LPG/CNG/dual fuel/hybrid(a)	^ 1 296	—	^ 442	*12	**4	**1	^ 43	^ 1 799
<b>Total</b>	<b>18 094</b>	<b>^ 124</b>	<b>4 909</b>	<b>2 463</b>	<b>3 785</b>	<b>^ 78</b>	<b>595</b>	<b>30 047</b>
AVERAGE RATE OF FUEL CONSUMPTION (LITRES PER 100 KILOMETRES) (b)								
Petrol	11.1	6.5	13.2	21.9	—	^ 22.1	14.5	11.4
Diesel	12.3	—	12.5	28.6	54.6	28.0	29.2	24.5
LPG/CNG/dual fuel/hybrid(a)	16.6	—	16.0	^ 26.9	^ 64.4	*30.9	^ 44.0	16.7
<b>Total</b>	<b>11.5</b>	<b>6.5</b>	<b>13.1</b>	<b>28.5</b>	<b>54.6</b>	<b>27.6</b>	<b>28.3</b>	<b>14.0</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution  
 \* estimate has a relative standard error of 25% to 50% and should be used with caution  
 \*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)  
 (a) LPG is liquefied petroleum gas. CNG is compressed natural gas.  
 (b) Calculated using the total fuel consumption divided by the total kilometres travelled.

Source: Survey of Motor Vehicle Use, Australia (9208.0).

**24.11 TOTAL FUEL CONSUMPTION(a), Type of fuel(b)**



(a) 1998 and 1999 are for year ended 31 July. Other years are year ended 31 October.  
 (b) Other fuel consists of LPG/CNG/dual fuel for 1998 to 2006. For 2007 it is these fuels plus hybrid.

Source: Survey of Motor Vehicle Use (9208.0).

kilometres and buses with 28.3 litres per 100 kilometres. The average fuel consumption rate for passenger vehicles was 11.5 litres per 100 kilometres or around 25 miles per gallon.

In March 2003, the Federal Chamber of Automotive Industries (FCAI) adopted a voluntary target aimed at progressively improving fuel consumption for new petrol passenger vehicles to an average of 6.8 litres per 100 kilometres by 2010.

In mid 2005, to reflect the need to reduce carbon emissions, a new industry target was established to reduce average carbon dioxide (CO<sub>2</sub>) emissions for all new light vehicles (less than 3.5 tonnes gross mass) to 222 grams of CO<sub>2</sub> per kilometre by 2010. Accordingly, this target incorporates a significantly broader range of vehicles (cars, SUVs and light trucks, etc.) and all fuel types (petrol, diesel, LPG, etc.).

Over recent years there has been a continuous reduction in average new vehicle emissions. From an estimated 252 grams of CO<sub>2</sub> per kilometre in 2002, National Average Carbon Emissions (NACE) for all new light vehicles sold in Australia for 2008 was 222.4 grams of CO<sub>2</sub> per kilometre. This decline in carbon emissions of new vehicles places the industry well on track to achieve the target of an average of 222 grams of CO<sub>2</sub> per kilometre by 2010.

The Government has commenced a process to review emission standards.

Graph 24.11 shows the total fuel consumption of registered vehicles for the yearly collection periods of the ABS Survey of Motor Vehicle Use for 1998 to 2007.

Between 1998 and 2007 total consumption for all types of petrol rose from 16,062 million litres to 18,876 million litres, a rise of 18%. Over the same period the consumption of diesel fuel rose from 5,840 million litres to 9,372 million litres, an increase of 60%, while the use of other fuels types fell by 10%, from 2,007 million litres in 1998 to 1,799 million litres in 2007.

Table 24.12 shows the sales of petroleum products for Australia for the years 1988 to 2008. Sales of automotive gasoline (petrol) in 2008 totalled 18,910 million litres, an increase of 2,135 million litres or 13%, compared with total sales of 16,775 million litres in 1988.

Between 1988 and 2008 sales of unleaded petrol increased by 392%. Unleaded petrol was introduced into the Australian market at the start of 1986 to reduce the toxicity of emissions into the atmosphere from motor vehicle engines. The use of unleaded petrol allowed catalytic converters to be fitted to, and used by, the motor vehicles which were sold in Australia from 1986, as the lead in leaded petrol (used as an engine anti-knock agent and valve seat lubricant) contaminates the converter and prevents it from treating the engine's exhaust gases.

Leaded petrol was phased out in Australia as of the first of January 2002. It was replaced with the alternative lead replacement petrol (LRP),

## 24.12 SALES OF PETROLEUM PRODUCTS

AUTOMOTIVE GASOLINE							
	Unleaded	Premium unleaded	Proprietary Brand	Lead replacement	E10	Total	Automotive Diesel Oil
	million litres	million litres	million litres	million litres	million litres	million litres	million litres
1988	2 945.0	na	na	13 830.0	na	16 775.0	9 365.6
1989	4 145.0	na	na	13 155.0	na	17 300.0	9 994.7
1990	5 219.0	na	na	11 932.0	na	17 151.0	10 022.0
1991	6 022.0	na	na	10 858.0	na	16 880.0	9 783.9
1992	6 853.0	na	na	10 256.0	na	17 109.0	10 053.4
1993	7 857.0	na	na	9 569.0	na	17 426.0	10 538.1
1994	9 343.8	na	na	8 339.8	na	17 683.6	11 050.7
1995	10 297.5	na	na	7 451.5	na	17 749.0	11 453.5
1996	11 186.0	na	na	6 781.5	na	17 967.5	12 133.4
1997	11 982.2	na	na	5 914.5	na	17 896.7	12 574.1
1998	12 888.0	na	na	5 123.1	na	18 011.1	12 616.9
1999	14 028.7	na	na	4 374.6	na	18 403.3	13 207.1
2000	14 751.3	na	na	3 406.7	na	18 158.0	12 877.9
2001	15 795.6	na	na	2 636.1	na	18 431.7	13 274.3
2002	16 832.5	na	na	2 051.3	na	18 883.8	13 720.1
2003	18 198.9	na	na	1 406.4	na	19 605.3	14 258.8
2004	18 283.5	773.6	na	840.8	na	19 901.3	14 803.4
2005	15 885.4	2 493.6	585.6	154.7	12.1	19 131.4	15 387.3
2006	15 934.9	1 794.0	1 157.3	0.5	151.3	19 038.0	16 464.3
2007	15 623.7	1 843.7	1 406.7	0.1	495.2	19 369.5	17 550.7
2008	14 502.6	1 710.4	1 388.5	0.2	1 308.5	18 910.2	18 725.7

na not available

Source: Department of Resources, Energy and Tourism – Australian Petroleum Statistics.

consisting of a high octane (96 RON) premium unleaded petrol containing a non-lead additive that protected against valve-seat recession. In 2002 sales of LRP were 2,051 million litres. The number of cars that require LRP has gradually reduced to the point that it has become effectively not viable for fuel suppliers to produce, store and distribute the fuel, and for service stations to retail it. This has resulted in a very limited availability of LRP, as it is being progressively phased out of the market. Sales of this fuel were 200,000 litres in 2008.

In 2005 sales of premium unleaded petrol, which can have a Research Octane Number (RON) of 95 to 98, depending on the particular product (compared with 91 for regular unleaded petrol) were 2,494 million litres, falling to 1,710 million litres in 2008.

Unleaded petrol sales accounted for 18% of total automotive gasoline sales in 1988. By 2008 unleaded petrol accounted for 77% of total automotive gasoline sales, premium unleaded 9%, proprietary brand fuel 7% and E10 fuel just under 7%. E10 is a specific fuel consisting of regular unleaded petrol blended with up to 10%

ethanol (an alcohol derived from carbohydrate-rich plants such as sugar cane and corn). Federal government legislation imposes a 10% limit on the amount of ethanol in automotive petrol.

In 2008 automotive diesel oil (ADO) sales volume was 18,726 million litres, a rise of 9,360 million litres or 100% compared with 9,366 million litres of ADO sold in 1988.

### Transport passenger activity

Personal travel occurs for many reasons, including school, business, recreation and travel to and from work. While road transport accounts for the majority of domestic passenger trips undertaken, rail services are used by a considerable number of urban commuters. Air services provide for a large proportion of long distance passenger travel.

### Road passenger vehicle activity

In the year ended 31 October 2007 Australia's 12 million registered passenger vehicles travelled an estimated 158 billion (b) km (table 24.13), each

### 24.13 MOTOR VEHICLE USE, By state/territory of registration—2007(a)

	Passenger vehicles	Motor cycles	Buses
TOTAL DISTANCE TRAVELLED (mill. km)			
New South Wales	47 771	^ 582	547
Victoria	44 037	^ 382	452
Queensland	30 954	*550	488
South Australia	10 684	^106	127
Western Australia	17 448	^195	^341
Tasmania	3 356	*39	43
Northern Territory	1 043	^18	63
Australian Capital Territory	2 635	^31	36
Australia	157 928	1 905	2 097
NUMBER OF VEHICLES (b)			
New South Wales	3 470 965	132 787	17 403
Victoria	3 077 139	122 825	14 474
Queensland	2 237 720	124 518	15 417
South Australia	925 709	36 264	4 054
Western Australia	1 256 998	68 223	9 355
Tasmania	279 524	10 969	2 021
Northern Territory	76 111	4 408	2 621
Australian Capital Territory	195 048	8 632	984
Australia	11 519 214	508 626	66 330

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Year ended 31 October 2007.

(b) The average number of vehicles registered for the twelve months. Includes registered vehicles that did not travel during the year.

Source: Survey of Motor Vehicle Use, Australia (9208.0).

### 24.14 RAIL PASSENGER OPERATIONS

	URBAN				
	Tram		Total	Non-urban	Total
	Heavy rail	and light rail			
mill. journeys	mill. journeys	mill. journeys	mill. journeys	mill. journeys	
2005–06	501	133	634	9	643
2006–07	529	137	666	11	677

Source: Australasian Railway Association Inc.

averaging 14,300 km per year. Around 508,600 motor cycles travelled 2 b km, while the fleet of just over 66,000 buses travelled 2 b km.

### Rail passenger activity

The passenger operations of rail operators are shown in table 24.14. Between 2005–06 and 2006–07 urban heavy rail and urban tram/light rail passenger journeys increased by 5% and 3% respectively, while total non-urban passenger journeys increased by 20%. Heavy rail accounted for 79% of urban rail passenger journeys in 2006–07.

### 24.15 DOMESTIC AIRLINE ACTIVITY

	2007	2008
Passenger departures(a)		
Domestic airlines	'000 40 919	44 135
Regional airlines	'000 5 826	5 723
Total	'000 46 745	49 857
Other activity (domestic airlines only)		
Revenue		
passenger-kilometres(b)	mill. 50 315	54 132
Seat-kilometres available(c)	mill. 62 201	68 604
Percentage of vacant seat-kilometres	% 20.1	22.1

(a) The unit of measurement is traffic on board (which includes transit traffic). Includes revenue passengers only.

(b) The sum for all flights of the number of revenue passengers travelling on each flight stage multiplied by the distance between airports.

(c) The sum for all flights of the number of seats available on each flight stage multiplied by the distance between airports.

Source: Bureau of Infrastructure, Transport and Regional Economics.



**24.16 DOMESTIC PASSENGER MOVEMENTS(a),  
Top 10 Australian airports**

	2007	2008
<i>Airport</i>	'000	'000
Sydney	21 801	22 700
Melbourne	18 271	19 990
Brisbane	14 107	14 705
Perth	6 108	6 708
Adelaide	5 963	6 316
Gold Coast	3 736	4 209
Cairns	3 304	3 434
Canberra	2 735	2 984
Hobart	1 664	1 831
Darwin	1 362	1 598

(a) The number of passengers on board arriving at or departing from each airport. Includes passengers in transit, who are counted as both arrivals and departures at airports through which they transit.

Source: Bureau of Infrastructure, Transport and Regional Economics.

**Domestic air passenger activity**

At 31 December 2008 four major domestic airlines operated in Australia - Qantas, Virgin Blue, Jetstar and Tiger Airways. Regional airlines such as Regional Express Airlines (REX), Brindabella Airlines, Northwest Regional Airlines and others provided connecting services to regional airports. There were 188 security regulated airports in Australia at the end of 2007.

Passenger departures were 7% higher in 2008, compared with 2007 (table 24.15), while the percentage of vacant seat-kilometres rose from 20% in 2007 to 22% in 2008. In 2008 domestic airlines accounted for 89% of total Australian domestic passenger departures, and regional airlines 11%.

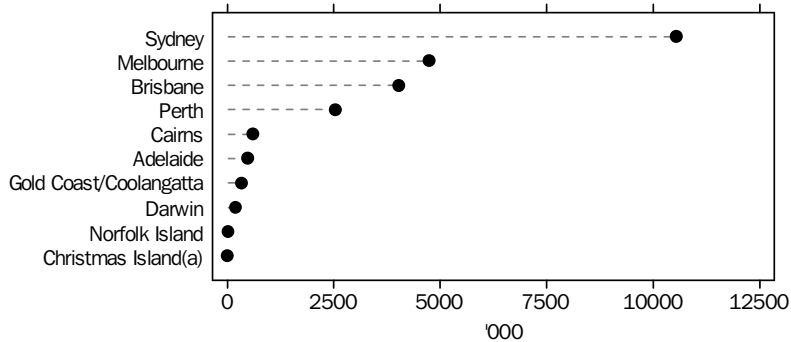
The number of domestic passenger movements at the top 10 airports in Australia is shown in table 24.16. In 2008 all these principal airports recorded increases in passenger movements compared with 2007. The strongest growth was recorded in Darwin (17%), followed by Gold Coast (13%) and Hobart and Perth (both 10%). The lowest growth was recorded in Cairns (4%).

**24.17 SCHEDULED INTERNATIONAL PASSENGER  
TRAFFIC TO AND FROM AUSTRALIA—2008**

	Inbound	Outbound	Total
<i>Country to/from</i>	'000 passengers	'000 passengers	'000 passengers
Argentina	27.7	26.4	54.0
Brunei	74.1	73.0	147.2
Canada	74.9	76.3	151.2
Chile	38.7	42.3	81.0
China (excl. SARs & Taiwan)	344.9	319.0	663.9
Cook Islands	0.7	0.7	1.3
Fiji	301.1	292.5	593.6
Germany	54.3	54.7	109.1
Guam	11.3	11.3	22.5
Hong Kong (SAR of China)	1 026.0	943.0	1 969.0
India	31.2	27.8	59.0
Indonesia	408.9	415.6	824.5
Italy	1.6	1.4	3.0
Japan	629.6	624.0	1 253.6
Korea, Republic of (South)	244.2	239.8	484.0
Malaysia	571.0	574.1	1 145.1
Mauritius	37.3	34.0	71.3
Nauru	1.5	1.3	2.7
New Caledonia	74.4	74.5	148.9
New Zealand	2 567.3	2 566.1	5 113.3
Papua New Guinea	91.3	95.1	186.5
Philippines	97.9	92.5	190.4
Singapore	2 101.9	1 993.8	4 095.7
Solomon Islands	17.9	19.6	37.6
South Africa	137.8	120.8	258.7
Tahiti	17.9	18.9	36.8
Taiwan	113.4	112.9	226.3
Thailand	701.3	663.0	1 364.2
Tonga	11.5	11.1	22.6
United Kingdom	376.6	377.5	754.1
United Arab Emirates	640.6	626.8	1 267.4
United States of America	842.3	843.0	1 685.3
Vanuatu	65.2	65.0	130.2
Vietnam	126.6	128.3	255.0
Western Samoa	17.9	17.9	35.8
<b>Total</b>	<b>11 881.1</b>	<b>11 584.1</b>	<b>23 465.3</b>

Source: Bureau of Infrastructure, Transport and Regional Economics.

**24.18 INTERNATIONAL PASSENGERS, Australian international airports—2008**



(a) Scheduled services recommenced in December 2007 and ceased in May 2008.

Source: Bureau of Infrastructure, Transport and Regional Economics.

### International air passenger activity

Passengers arriving or departing Australia primarily travel by air.

Of total international passengers (23 million) carried to and from Australia in 2008, 5 million travelled between Australia and New Zealand and 4 million travelled between Australia and Singapore (table 24.17).

Graph 24.18 shows the number of international passengers who travelled through each of Australia's international airports in 2008. Sydney's share of total international passenger traffic was 45%, followed by Melbourne (20%), Brisbane (17%) and Perth (11%).

## Accidents, injuries and fatalities

### Transport accident deaths

Accident costs include loss of life or injury to people, and the destruction of, and damage to equipment and infrastructure. Table 24.19 shows the number of transport-related deaths for each of the transport modes for 2006 and 2007. Transport-related deaths fell from 1,652 in 2006 to 1,340 in 2007. The majority of deaths (74% in 2007) were associated with motor vehicles driven on public roads. Pedestrian deaths fell from 254 in 2006 to 182 in 2007, while the number of pedal cyclist deaths fell from 37 to 34, and the number of water deaths fell from 36 to 31, over the same period.

**24.19 DEATHS FROM TRANSPORT ACCIDENTS(a)**

	2006	2007
Mode(b)		
Motor vehicles(c)	1 137	986
Pedestrians	254	182
Pedal cyclists	37	34
Water	36	31
Air	36	36
Other(d)	152	71
<b>Total</b>	<b>1 652</b>	<b>1 340</b>

- (a) Based on the International Classification of Diseases, 10th Edition (ICD-10). Data in this table relates to reference year and are based on death occurring up to one year following a transport accident. Data will, therefore, differ from the traffic fatalities shown in tables 24.20 and 24.21 and graphs 24.22 and 24.23, as these data are based on year of occurrence of transport-related deaths which occur within 30 days of an incident.
- (b) Mode of transport of deceased persons.
- (c) Involving motor vehicles driven on public roads.
- (d) Includes accidents occurring on rail, agricultural equipment, all terrain vehicles, industrial and construction vehicles, accidents involving riders of animals, and unspecified transport accidents.

Source: ABS data available on request, Causes of Death collection.

### Road traffic crashes

#### Crashes involving fatalities

The number of fatal road traffic crashes in 2008 (1,342) fell by 111 compared with 2007 (table 24.20). Between 2007 and 2008 fatal crashes in the Northern Territory rose by 43%, while South Australia, Queensland and Western Australia

### 24.20 ROAD TRAFFIC CRASHES INVOLVING FATALITIES

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
<b>FATAL CRASHES</b>									
2007	405	289	338	107	214	39	47	14	1 453
2008	376	278	293	87	189	38	67	14	1 342
<b>PEOPLE KILLED</b>									
2007	435	332	360	124	235	45	58	14	1 603
2008	397	303	327	99	209	40	75	14	1 464

Source: Department of Infrastructure, Transport, Regional Development and Local Government.

### 24.21 ROAD TRAFFIC FATALITIES

	2007			2008		
	no.	per 100,000 persons(a)	per 10,000 motor vehicles registered(b)	no.	per 100,000 persons(a)	per 10,000 motor vehicles registered(b)
New South Wales	435	6.32	1.00	397	5.70	0.88
Victoria	332	6.40	0.87	303	5.72	0.77
Queensland	360	8.61	1.19	327	7.64	1.03
South Australia	124	7.83	1.07	99	6.18	0.84
Western Australia	235	11.16	1.40	209	9.66	1.20
Tasmania	45	9.12	1.18	40	8.03	1.02
Northern Territory	58	26.99	4.91	75	34.10	6.10
Australian Capital Territory	14	4.12	0.60	14	4.07	0.58
<b>Australia</b>	<b>1 603</b>	<b>7.62</b>	<b>1.08</b>	<b>1 464</b>	<b>6.85</b>	<b>0.96</b>

(a) Estimated resident population at 30 June.

(b) Number of registered motor vehicles and motor cycles (excludes tractors, caravans, plant and equipment) at 31 March.

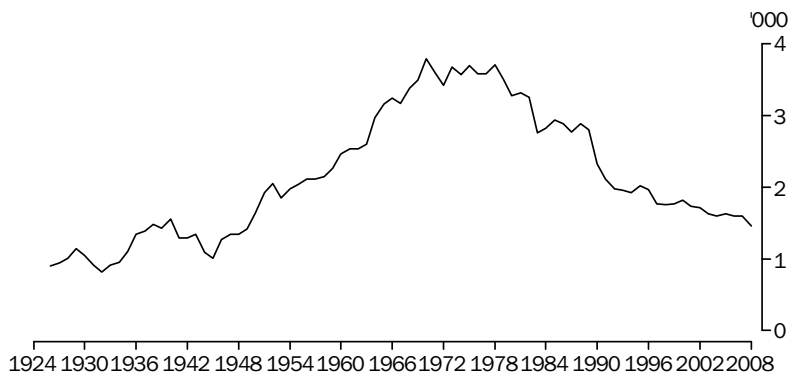
Source: Department of Infrastructure, Transport, Regional Development and Local Government.

recorded the greatest falls of 19%, 13% and 12% respectively.

The number of people killed was lower in 2008 (1,464) compared with 2007 (1,603) a fall of 9%. The number of people killed in the Northern Territory increased from 58 in 2007 to 75 in 2008,

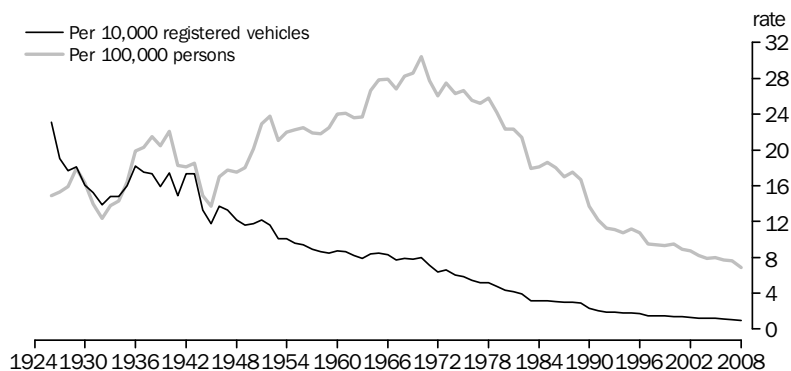
a rise of 29%. The number of people killed in the Australian Capital Territory remained unchanged for both years (14), while all the states recorded fewer people killed, with South Australia having the greatest fall (20%).

### 24.22 ROAD FATALITIES



Source: Department of Infrastructure, Transport, Regional Development and Local Government.

## 24.23 ROAD FATALITY RATES



Source: Department of Infrastructure, Transport, Regional Development and Local Government.

### Road traffic fatalities

The number of deaths from road traffic crashes per 100,000 persons fell from 7.6 in 2007 to 6.9 in 2008. In 1970 the rate was 30.4. Road deaths per 100,000 persons in the Northern Territory in 2008 (34.1) was significantly higher than the national rate (table 24.21). The Australian Capital Territory had the lowest rate of road deaths (4.1 per 100,000 persons) in 2008. South Australia recorded the greatest decrease in road deaths per 100,000 persons, from 7.8 in 2007 to 6.2 in 2008 (a fall of 21%), followed by Western Australia (13%) and Tasmania (12%).

The Northern Territory had the highest number of fatalities per 10,000 registered vehicles (6.1) in 2008, an increase of 24% compared with 2007. Between 2007 and 2008 fatalities per 10,000 registered vehicles fell the most in South Australia, from 1.1 to 0.8, a fall of 21%.

### Road fatalities and fatality rates – 1926 to 2008

Australian road fatalities for the period 1926 to 2008 are shown in graph 24.22. Road fatalities per 10,000 registered vehicles and 100,000 persons for the same period are shown in graph 24.23. Until 1970, each year other than during the Great Depression and World War 2 had seen a steady growth in motor vehicle ownership and a corresponding increase in road deaths. By 1970 the number of vehicles had increased twelve-fold over the number in 1926 and the road toll had increased about four times to reach its highest mark of 3,798 deaths. The number of fatalities per

100,000 people also peaked in 1970 at 30.4. The road toll in 2008 of 1,464 was around 40% of the 1970 figure, while the number of fatalities per 100,000 people (6.9) for 2008 was slightly less than a quarter of that of 1970. Also, while there were eight road fatalities per 10,000 registered vehicles in 1970, this rate has decreased to one in 2008.

### Characteristics of fatal crashes

Two characteristics of fatal crashes for 2003 and 2008 are shown in table 24.24.

In both 2003 and 2008 most of fatal crashes occurred on roads where the posted speed limit was 100 kilometres per hour (km/h) and above (42% in 2008), followed by roads with a speed limit of up to 60 km/h (35%). A further 23% of fatal crashes occurred on roads with speed zones of between 65 km/h and 95 km/h.

### 24.24 CHARACTERISTICS OF FATAL CRASHES

	2003		2008	
	no.	%	no.	%
Speed limit at crash site				
Up to 60 km/h	477	33.0	473	35.2
65–95 km/h	323	22.4	310	23.1
100 km/h and above(a)	645	44.6	559	41.7
Type of crash				
Pedestrian	227	15.7	192	14.3
Single vehicle	634	43.9	653	48.7
Multiple vehicle	584	40.4	497	37.0

(a) Includes zones of unrestricted speed.

Source: Department of Infrastructure, Transport, Regional Development and Local Government.

## 24.25 ROAD TRAFFIC FATALITIES, International comparisons—2007

Country	PEOPLE KILLED				TOTAL
	no.	per 100,000 persons	per 10,000 registered vehicles	per 100 mill. vehicle-km travelled	POPULATION
					mill.
<b>Australia</b>	<b>1 603.0</b>	<b>7.6</b>	<b>1.1</b>	<b>0.7</b>	<b>21.0</b>
France	4 620	7.5	1.2	0.8	61.5
Germany	4 949	6.0	0.9	0.7	82.4
Japan	6 639	5.2	0.8	0.9	127.8
Korea, Republic of (South)	6 166	12.7	3.2	na	48.5
New Zealand	422	10.0	1.3	1.1	4.2
Poland	5 583	14.7	2.9	na	38.1
Portugal	974	9.2	na	na	10.6
Spain	3 823	8.6	na	na	44.5
Sweden	471	5.2	0.9	0.6	9.1
Switzerland	384	5.1	0.7	0.6	7.5
United Kingdom	2 946	5.0	0.9	0.6	59.2
United States of America	41 059	13.6	na	0.9	301.3
OECD median	na	7.8	1.2	0.7	na

na not available

Source: Department of Infrastructure, Transport, Regional Development and Local Government.

In both 2003 and 2008 the highest proportion of fatal crashes was single vehicle crashes (44% and 49% respectively). Pedestrian crashes accounted for 16% of crash types in 2003 and 14% in 2008.

### International comparisons of road traffic deaths

Australian road traffic deaths are compared with those for other selected OECD nations in table 24.25. Australia's rate of 7.6 road deaths per 100,000 persons in 2007 is considerably lower than the rates of Poland (14.7), the United States of America (13.6), the Republic of (South) Korea (12.7) and New Zealand (10.0). Australia's rate is, however, markedly higher than Japan and Sweden (both 5.2), Switzerland (5.1) and the United Kingdom (5.0).

Australia's rate of road deaths per 10,000 registered vehicles (1.1) was below the OECD median (1.2). For the countries listed, the Republic of (South) Korea has the highest death rate per 10,000 registered vehicles (3.2).

The number of fatalities per 100 million vehicle-kilometres travelled in Australia in 2007 (0.7) was the same as the OECD median (0.7).

### Air accidents

Between 1999 and 2008 the number of aircraft involved in accidents declined by 21%, from 180 in 1999 to 143 in 2008, with a low of 92 in 2006 (graph 24.26). The number of aircraft involved in fatal accidents remained the same for both 1999 and 2008 (22), with a low of 10 in 2002. In 2008 there were 36 fatalities involving registered civil aircraft, compared with 22 in 2007. In 2008 there were 143 accidents of which 22 were fatal accidents, compared with 120 accidents of which 13 were fatal in 2007.

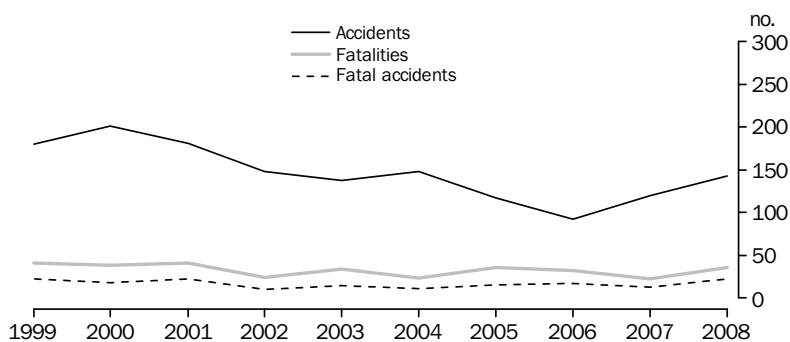
### Transport equipment

#### Registered motor vehicles

There were 15.7 million motor vehicles (excluding tractors, plant and equipment, caravans and trailers) registered in Australia at 31 March 2009 (table 24.27). Almost eight out of every ten vehicles are passenger vehicles. New South Wales, Victoria and Queensland are the states with the largest number of vehicles with 29%, 26% and 21% of the total vehicle fleet respectively.

The average age of the Australian motor vehicle fleet at 31 March 2009 was 10 years (table 24.28). Tasmania recorded the highest average age (12 years) while New South Wales, the Northern

## 24.26 AIR ACCIDENTS, FATALITIES AND FATAL ACCIDENTS(a)



(a) Involving registered civil aircraft.

Source: Australian Transport Safety Bureau.

## 24.27 REGISTERED MOTOR VEHICLES—31 March 2009

	Light TRUCKS								
	Passenger vehicles(a)		commercial vehicles		Non-freight carrying			Motor cycles	Total(b)
	'000	'000	Rigid	Articulated	Buses	'000	'000		
New South Wales	3 612	631	119	17	4	22	163	4 567	
Victoria	3 189	526	99	24	6	18	148	4 010	
Queensland	2 373	617	99	18	5	19	152	3 283	
South Australia	963	159	28	7	2	5	45	1 209	
Western Australia	1 353	300	59	12	4	13	87	1 828	
Tasmania	290	82	11	2	1	2	13	401	
Northern Territory	81	33	4	1	—	3	5	129	
Australian Capital Territory	209	23	2	—	—	1	11	247	
<b>Australia</b>	<b>12 070</b>	<b>2 371</b>	<b>422</b>	<b>81</b>	<b>22</b>	<b>84</b>	<b>624</b>	<b>15 674</b>	

— nil or rounded to zero (including null cells)

(a) Includes campervans.

(b) Excludes tractors, plant and equipment, caravans and trailers.

Source: Motor Vehicle Census, Australia (9309.0).

## 24.28 ESTIMATED AVERAGE AGE OF THE VEHICLE FLEET(a)—31 March 2009

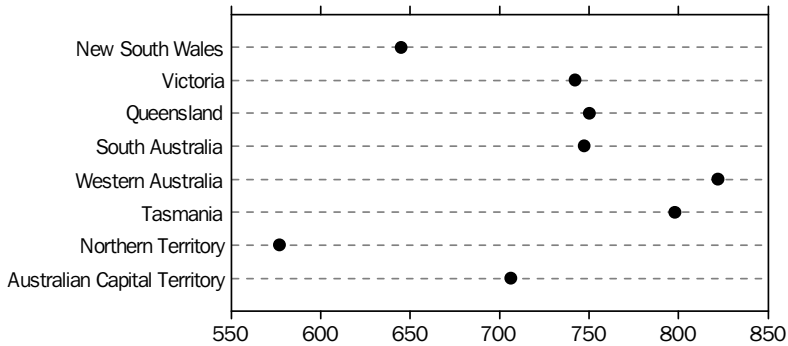
Type of vehicle	STATE/TERRITORY OF REGISTRATION								Aust.
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	
Passenger vehicles	9.2	10.1	9.3	10.9	9.7	11.5	8.6	9.4	9.7
Campervans	16.7	18.0	14.8	21.7	21.4	20.5	20.2	19.8	18.1
Light commercial vehicles	10.1	11.2	9.8	11.2	10.5	12.6	8.9	9.6	10.4
Light rigid trucks	10.8	11.2	10.2	11.5	11.3	15.3	10.0	10.3	10.9
Heavy rigid trucks	14.0	17.1	13.7	16.7	17.1	16.7	12.6	10.9	15.4
Articulated trucks	10.0	11.2	10.2	10.7	11.7	9.4	12.1	8.4	10.7
Non-freight carrying trucks	12.5	15.6	10.6	15.0	15.8	15.8	13.9	13.0	13.9
Buses	11.3	11.4	10.1	11.8	10.9	14.9	8.4	11.3	11.0
Motor cycles	8.4	9.0	8.2	8.3(b)	9.8	10.0	6.7	8.5	8.7
<b>Total</b>	<b>9.4</b>	<b>10.4</b>	<b>9.5</b>	<b>11.0</b>	<b>10.1</b>	<b>11.9</b>	<b>8.8</b>	<b>9.4</b>	<b>9.9</b>

(a) Excludes plant and equipment, caravans and trailers.

(b) Year of manufacture is not well reported for South Australian motor cycles.

Source: Motor Vehicle Census, Australia (9309.0).

**24.29 MOTOR VEHICLES ON REGISTER(a), per 1,000 persons—31 March 2009**



(a) Excludes tractors, plant and equipment, caravans and trailers.

Source: Motor Vehicle Census (9309.0).

**24.30 AUSTRALIAN TRADING FLEET—30 June**

		2005	2006	2007	2008
Ships	no.	107	105	96	94
Deadweight(a)	'000 tonnes	3 315	3 041	3 032	2 681
Gross tonnage(b)	'000 tonnes	2 472	2 369	2 311	2 142

(a) Weight that a vessel can carry, including cargo, bunkers, water and stores.

(b) Measure of the internal capacity of a ship (in tonnes) that is available within the hull and enclosed spaces for cargo, stores, passenger and crew.

Source: Bureau of Infrastructure, Transport and Regional Economics.

Territory and the Australian Capital Territory recorded the lowest average age (9 years). Of the different vehicle types, campervans had the oldest average age (18 years), while motorcycles recorded the lowest (9 years).

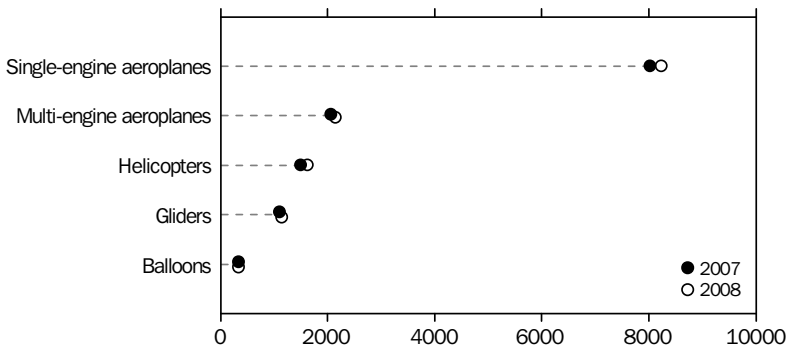
The number of motor vehicles registered at 31 March 2009 represents 720 registrations per 1,000 people (graph 24.29). In 2009, the rate was

highest for Western Australia - 822 registrations per 1,000 people.

**Shipping fleet**

The Australian trading fleet consists of cargo vessels owned and/or operated by Australian companies to and from Australia. The fleet includes vessels that carry cargo and passengers,

**24.31 REGISTERED AIRCRAFT(a)—at 31 December**



(a) Includes amateur built aircraft. Gliders includes powered and non-powered aircraft.

Source: Civil Aviation Safety Authority, Civil Aircraft Register.

but does not include vessels that carry passengers only. This fleet decreased from 107 ships in 2005 to 94 ships in 2008 (table 24.30). Deadweight tonnes has fallen from 3.3 million tonnes in 2005 to 2.7 million tonnes in 2008. Gross tonnage fell from 2.5 million tonnes in 2005 to 2.1 million tonnes in 2008.

### **Aircraft fleet**

There were 13,459 aircraft in the Australian Civil Aircraft Register at 31 December 2008, including 10,364 aeroplanes, 1,619 helicopters and 338 balloons (graph 24.31).



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## INFORMATION AND COMMUNICATION TECHNOLOGY

Information and communication technology (ICT) and ICT goods and services play an important role in the way in which people live and do business. Essentially, ICT products include computer hardware, computer software, telecommunication assets, computer services and telecommunication services. There is considerable interest in the role of ICT and ICT products in the social and economic development of Australia.

ICT products are closely associated with the phenomenon of the digital economy, and other events such as the 'dotcom' age and the privatisation of telecommunication that has occurred in a number of countries over the past two decades. Much of the demand for information on ICT products has been driven by interest in the uptake of new technologies, including broadband, and the impact ICT may have had on business performance in Australia.

This chapter presents information on the characteristics and performance of industries involved in the production of ICT goods and services. It also provides statistics on Internet activity and the use of information technology by businesses, households and farms.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Information and communication technology (ICT) industries

ICT industries include businesses engaged in the production and distribution of ICT goods and services. In Australia, these are Computer system design services, Electronic and precision equipment repair and maintenance, and relevant Information media and Telecommunications, Manufacturing and Wholesale trade industry classes, as defined in the *Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006* (1292.0).

Table 25.1 provides information about businesses in the ICT industries.

As reflected by the total gross income for ICT businesses in the Manufacturing industry grouping, this sector was very small in Australia in 2006–07. The total gross income of this industry grouping was \$4,404 million (m) in 2006–07, with most income coming from sales of goods produced (80.2% or \$3,533m). Total sales of goods produced was mainly made up of: radio, television and communication equipment and apparatus (\$860m); office, accounting and computing equipment (\$807m); and other electronic equipment (\$642m).

In 2006–07, ICT businesses in the Wholesale trade industry grouping reported total income of \$50,903m. The majority of gross income came from sales of goods purchased for resale (88.4% or \$44,997m) including: non-ICT electrical and electronic equipment not elsewhere classified (\$15,380m); computer hardware, parts and components (\$14,141m); and communications hardware, parts and components (\$6,446m).

The Information media and telecommunications industry grouping reported total income of \$40,208m in 2006–07. Two thirds of this income (\$26,664m) came from the provision of telecommunication services. These were in turn mainly made up of: mobile and messaging services (\$11,800m); and basic telephony services (\$9,586m). Internet services was the other main income earner for this industry group, accounting for a further \$5,853m (14.6%) of the total income.

The Computer system design and related services industry grouping reported total income of \$26,049m in 2006–07. The major source of

income was the provision of computer services (\$18,178m) including: other consultancy (\$4,428m); hardware consultancy (\$4,062m); customised software consultancy (\$4,017m); and other software consultancy (\$3,706m). In addition, the Computer system design and related services industry grouping earned \$5,483m from sales of goods (21.0% of total income).

The Electronic and precision equipment repair and maintenance industry grouping reported total income of \$1,275m in 2006–07. The major source of income was repair and maintenance services (\$837m or 65.7%), including: repair and maintenance of ICT equipment (\$514m); and repair and maintenance of non-ICT equipment (\$323m). Sales of goods accounted for a further 26.8% (\$341m) of total income for this industry grouping.

ICT businesses recorded total operating profit before tax (OPBT) of \$10,331m in 2006–07. OPBT was highest for ICT businesses in the Information media and telecommunications industry grouping (\$4,894m) and lowest for the Electronic and precision equipment repair and maintenance industry grouping (\$112m). The overall operating profit margin for ICT businesses was 8.5% in 2006–07. At the industry grouping level, profit margins ranged from a high of 12.4% for Information media and telecommunications to a low of 6.1% for Wholesale trade.

In 2006–07, businesses with 100 or more employees accounted for 51.6% (154,603 people) of all ICT employment (299,805 people) and 68.4% (\$83,991m) of total income earned by all ICT businesses. In contrast, businesses with 0–19 employees accounted for 30.1% (90,105 people) of ICT employment but only 15.4% (\$18,958m) of total income. OPBT for ICT businesses with 100 or more employees totalled \$7,668m in 2006–07. This compared with \$1,427m for ICT businesses with 0–19 employees, \$897m for those with 20–99 employees, and \$338m for non-employed businesses.

Table 25.2 shows total income from the production of selected ICT products in 2006–07 was \$63,063m. The majority of this income was attributable to the provision of services, namely: telecommunication services (\$34,273m or 54.3%); and computer services (\$23,250m or 36.9%).

## 25.1 SUMMARY OF OPERATIONS, By ANZSIC06 industry class—2006–07

<i>Industry</i>	<i>Employment</i>	<i>ICT income</i>	<i>Total income</i>	<i>Wages and salaries</i>	<i>Operating expenses</i>	<i>Operating profit before tax</i>	<i>Capital expenditure</i>	<i>Industry value added</i>
	no.	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Manufacturing</b>								
Computer and electronic office equipment	^ 3 170	821.3	1 094.7	^ 162.7	1 067.2	**5.1	^9.5	^ 196.2
Communication equipment	4 911	^ 1,011.2	1 240.3	287.5	1 084.4	^ 169.8	59.1	532.0
Other electronic equipment	7 873	^ 667.3	2 069.0	462.0	1 897.3	191.2	53.4	720.1
<b>Total</b>	<b>15 953</b>	<b>2 499.8</b>	<b>4 404.0</b>	<b>912.1</b>	<b>4 049.0</b>	<b>366.1</b>	<b>122.0</b>	<b>1 448.3</b>
<b>Wholesale trade</b>								
Computer and computer peripheral	22 446	18 060.8	18 951.5	1 866.6	17 736.0	1 318.2	144.7	3 739.6
Telecommunication goods	9 846	6 469.8	6 845.5	759.3	6 717.1	213.2	400.9	1 128.0
Other electrical and electronic goods	38 361	6 435.4	25 105.8	2 263.6	23 992.0	1 517.6	260.8	4 367.2
<b>Total</b>	<b>70 653</b>	<b>30 966.0</b>	<b>50 902.8</b>	<b>4 889.4</b>	<b>48 445.1</b>	<b>3 048.9</b>	<b>806.4</b>	<b>9 234.8</b>
<b>Information media and telecommunications</b>								
Software publishing	^ 5,250	^ 908.6	^ 1,022.3	^ 296.8	^ 928	*93.9	48.5	^ 496.1
Telecommunication services(a)	57 144	34 521.3	35 143.9	4 272.8	30 768.4	4 477.0	6 988.6	np
Internet service providers and web search portals	^ 9,338	2 478.2	2 757.4	440.0	2 596.1	^ 163.3	^ 271.0	763.1
Data processing and web hosting services	^ 4890	^ 764.7	^ 974.5	^ 284.4	^ 855.9	*119.6	^ 52.4	np
Electronic information storage services	1 513	265.9	309.6	73.4	269.0	^ 40	15.8	150.3
<b>Total</b>	<b>78 136</b>	<b>38 938.8</b>	<b>40 207.8</b>	<b>5 367.4</b>	<b>35 417.4</b>	<b>4 893.6</b>	<b>7 376.3</b>	<b>19 140.4</b>
Computer system design and related services	128 171	24 459.3	26 049.4	9 660.9	24 208.4	^ 1,910	1 198.0	13 901.6
Electronic (except domestic appliance) and precision equipment repair and maintenance	6 892	889.4	^ 1,274.7	290.8	^ 1,154.4	^ 112.1	^ 53.3	458.4
<b>Total ICT industry</b>	<b>299 805</b>	<b>97 753.3</b>	<b>122 838.6</b>	<b>21 120.7</b>	<b>113 274.2</b>	<b>10 330.8</b>	<b>9 556.0</b>	<b>44 183.5</b>

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes ANZSIC06 classes Wired telecommunications network operation, Other telecommunications network operation and Other telecommunications services. These 3 classes have been combined for confidentiality reasons.

Source: Information and Communication Technology, Australia (8126.0).

## 25.2 ICT GOODS AND SERVICES, Production—2006–07

<i>Commodity</i>	<i>Income from domestic production</i>
	\$m
Computer and communications hardware, equipment and cables	3 143.3
Non-customised software (including licence fees)	2 397.4
Income from provision of computer services	23 249.7
Income from provision of telecommunication services	34 272.5
<b>Total</b>	<b>63 063.0</b>

Source: Information and Communication Technology, Australia (8126.0).

### Use of information technology (IT)

This section focuses on the key indicators of the use of Information Technology (IT) made by Australian businesses, households and farms in Australia.

### Businesses

In the five year period from 2002–2003 to 2007–08, the proportion of Australian businesses with access to the Internet increased from 71% to 87% and those with a web presence from 23% to 36% (table 25.3).

In 2007–08, nearly all (99%) businesses with 200 or more employees accessed the Internet, while

### 25.3 BUSINESS USE OF INFORMATION TECHNOLOGY, AUSTRALIA—BUSINESS USE OF SELECTED TECHNOLOGIES(a), By employment size and industry—2007–08

	<i>Businesses with internet use</i>	<i>Businesses with web presence</i>
	%	%
Employment size		
0–4 persons	83	27
5–19 persons	92	48
20–199 persons	98	65
200 or more persons	99	96
Industry		
Mining	93	48
Manufacturing	89	46
Electricity, gas, water and waste services	87	33
Construction	84	15
Wholesale trade	94	53
Retail trade	82	40
Accommodation and food services	71	37
Transport, postal and warehousing	76	18
Information media and telecommunications	98	62
Financial and insurance services	98	48
Rental, hiring and real estate services	85	52
Professional, scientific and technical services	98	51
Administrative and support services	92	38
Health care and social assistance	89	26
Arts and recreation services	92	52
Other services	81	29
<b>Total</b>	<b>87</b>	<b>36</b>

(a) Proportions are of all businesses in each category.

Source: Business use of Information Technology (8129.0).

the proportion dropped from 94% to 83% for businesses with 0–4 employees. Most businesses with 200 or more employees had a web presence (96%), while only a quarter (27%) of businesses with 0–4 employees had a web presence.

In 2007–08 the proportion of businesses using IT varied considerably across industries. The industries with the highest proportion of businesses which used the Internet were Financial and insurance services, Information media and telecommunications, and Professional, scientific and technical services (all 98%). Accommodation and food services had the lowest proportion of businesses which used the Internet (71%), followed by Transport, postal and warehousing (76%). Web presence was highest in Information media and telecommunications (62%) and Wholesale trade (53%), while Construction and Transport, postal and warehousing had the lowest proportions of businesses with a web presence (15% and 18% respectively).

## Households

In 2008–09, 78% of all Australian households had access to a computer and 72% had home internet access (graph 25.4). More than five times as many households had home access to the internet in the 2008–09 financial year, compared with the 1998 calendar year.

In 2008–09, the proportion of households with home computer access was higher for households with children under 15 years of age (91%) compared with those without children under 15 years (73%). Home computer access

was lowest for all households in Tasmania (71%) and highest in the Australian Capital Territory (88%). In 1998, only a third of all households (36%) with a computer had home access to the internet; by 2008–09 this had increased to 92%.

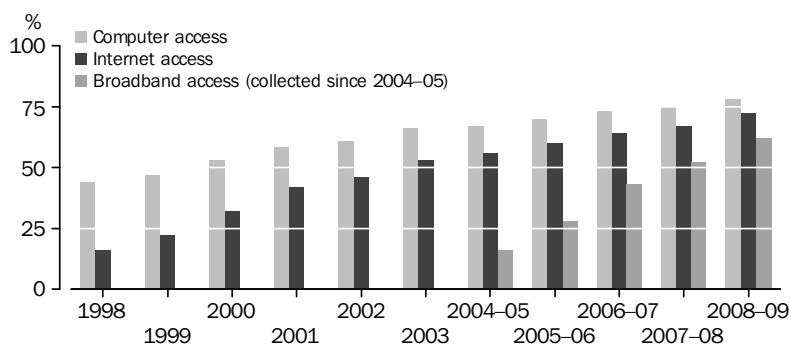
In 2008–09, the number of households with a broadband internet connection had almost quadrupled from 2004–05 to an estimated 5.0 million households. This represented three out of five (62%) households in Australia and 86% of households with internet access.

The Australian Capital Territory continued to register the highest proportion of households with a broadband internet connection (74% of all households), while Tasmania and South Australia still had the lowest proportion of households with a Broadband internet connection (49% and 54% respectively).

The dominant type of technology used by households for broadband connection to the internet continued to be Digital Subscriber Line (DSL), although the percentage of households using this type of technology decreased from 69% of all broadband connections in 2007–08 to 64%. There was a corresponding increase over this period in the take-up of wireless technologies from 1% to 7%.

Certain socioeconomic characteristics of households continued to be associated with low rates of computer, internet and broadband connectivity across Australia, such as households which do not have children under 15 years; are located in ex-metropolitan Australia; and/or had low household incomes.

**25.4 HOUSEHOLD COMPUTER, INTERNET AND BROADBAND ACCESS(a)**



(a) Proportion of total households.

Source: *Household Use of Information Technology, Australia (8146.0)*.

## Farms

In 2007–08 in Australia, there were 141,026 farms with an estimated value of agricultural operations of \$5,000 or more. Of these farms, nearly half (48%) accessed a broadband internet connection, while 17% accessed the Internet via a dial-up connection (table 25.5).

Western Australia continued to record the highest proportion of farms using the Internet for business operations (73%) in 2007–08, while Tasmania recorded the lowest proportion of farms using the Internet (59%).

Map 25.6 below depicts the proportion of farms that are not using the Internet for business operations, by statistical division. Smaller farms located around urban areas are less likely to use the Internet for business operations, whilst a higher proportion of farms in remote areas use the Internet for business operations.

## How Australia accesses and uses the internet

Australians have access to a range of internet access technologies, including analog, digital subscriber line (DSL), hybrid fibre coaxial, fixed and mobile wireless, satellite and optical fibre services. The availability of these services depends upon a consumer's geographic location.

At the end of June 2009 there were 8.4 million active internet subscribers in Australia, with household subscriptions accounting for 84%, with the remaining 16% being corporate, business and government subscribers (table 25.7).

At 30 June 2009, 87% of subscribers used a broadband internet connection, compared with 13% who used dial-up services (table 25.8). The most prevalent form of access technology for broadband connections was DSL which accounted for 50% of all subscriptions. Mobile wireless technology recorded the largest growth in subscriber numbers, rising from 16% of all connections on 31 December 2008 to 23% on 30 June 2009.

Graph 25.9 shows the overall trend of internet access connections; notably, the switch from dial-up to non-dial-up connections. In June 2006, there were 2.8 million dial-up connections in Australia compared with 3.2 million non dial-up connections. Dial-up connections continued to decrease over the three years to June 2009 to 1.0 million subscribers, while non dial-up connections increased over the same period to 7.2 million subscribers as Australians availed themselves of broadband technology. The graph also depicts the trend in the uptake of wireless technology with wireless connections increasing from 0.1 million in June 2006 to 2.1 million in June 2009.

**25.5 USE OF THE INTERNET ON FARMS FOR BUSINESS OPERATIONS, By States and Territories and type of connection—2007–08**

	FARMS							
	ALL FARMS		USING THE INTERNET (a)		DIAL-UP CONNECTION		BROADBAND CONNECTION	
	no.		no.	%	no.	%	no.	%
New South Wales	44 500	28 417	64	6 502	15	21 477	48	
Victoria	34 257	21 258	62	5 625	16	15 394	45	
Queensland	29 192	19 637	67	5 390	18	14 024	48	
Adelaide	15 044	10 567	70	3 087	21	7 349	49	
Western Australia	13 135	9 524	73	2 481	19	6 956	53	
Tasmania	4 211	2 483	59	^ 684	16	1 764	42	
Northern Territory	605	435	72	*100	^17	332	55	
Australian Capital Territory	82	61	74	^11	^13	50	62	
<b>Australia</b>	<b>141 026</b>	<b>92 383</b>	<b>66</b>	<b>23 881</b>	<b>17</b>	<b>67 347</b>	<b>48</b>	

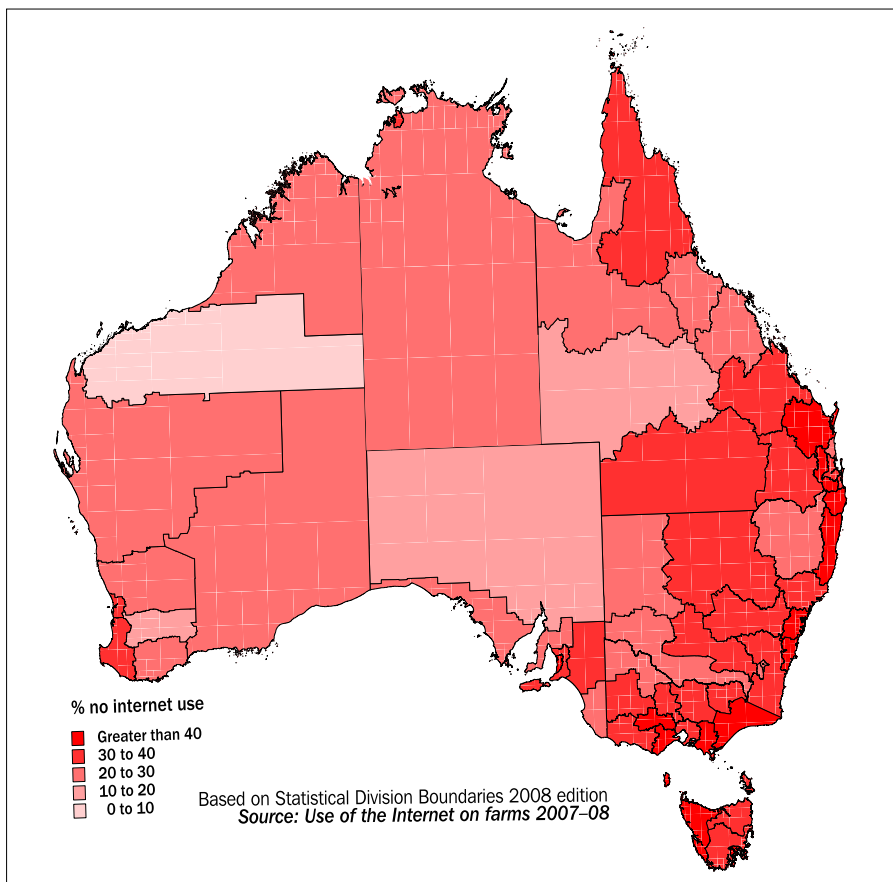
^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Percentages are of all farms.

Source: Use of the Internet on Farms (8150.0).

**25.6 PROPORTION OF FARMS NOT USING THE INTERNET FOR BUSINESS OPERATIONS, By Statistical Division—2007–08**



Internet subscribers continued to switch to higher download speeds with over half of all subscriptions (57% or 4.8 million) now with download speeds of 1.5Mbps or greater (table 25.10). A speed of 1.5Mbps or greater enables live streaming of video.

**Business use**

The proportion of Australian businesses using the Internet to place orders during 2007–08 was 43% which continued the pattern of growth over recent years of this business practice. The proportion of businesses reporting receipt of orders via the internet has remained relatively steady over the past two years, moving from 21% in 2005–06 to 24% in 2007–08, although the overall volume of income that resulted from orders received via the internet for goods or

services increased significantly from \$56.7b to \$81.0b over the same time frame. In terms of the percentage of income received from these orders, the majority of businesses received less than 10% of their income from orders received in this manner.

As with web presence and internet access, the likelihood of a business placing orders via the Internet or web increased with the employment size of the business (table 25.12). In 2007–08, 71% of businesses with 200 or more employees placed orders in this manner, compared with 37% of businesses with 0–4 employees. At the industry level, Information media and telecommunications had the highest proportion of businesses which placed orders via the Internet or web (61%), while Transport, postal and warehousing and



## 25.7 INTERNET ACTIVITY SUMMARY, AUSTRALIA

	June 2008(a)	June 2009(b)
	'000	'000
<b>SUBSCRIBERS</b>		
Dial-up		
Business and government	291	215
Household	1 275	887
Total	1 566	1 103
Non dial-up		
Business and government	726	1 174
Household	4 935	6 144
Total	5 661	7 317
Total		
Business and government	1 018	1 389
Household	6 210	7 031
Total	7 228	8 420

(a) Data for ISPs with more than 10,000 active subscribers.

(b) Data for ISPs with more than 1,000 active subscribers.

Source: Internet Activity, Australia (8153.0).

## 25.8 INTERNET SUBSCRIBERS, By access connection—June 2009

	No. of subscribers	Proportion of subscribers
	'000	%
Dial-up		
Analog	1 077	13
ISDN/Other	10	—
Total	1 087	13
Non dial-up		
DSL	4 171	50
Fixed wireless	160	2
Mobile wireless	1 961	23
Satellite	90	1
Cable and fibre	931	11
ISDN/Other	20	—
Total	7 333	87
<b>Total all subscribers</b>	<b>8 420</b>	<b>100</b>

— nil or rounded to zero (including null cells)

Source: Internet Activity, Australia (8153.0).

Construction both reported the lowest proportions (28% and 30% respectively).

There was less variability by employment size for businesses receiving orders via the Internet or web. Businesses with 20–199 employees received the highest proportion of orders in this way

(32%), compared with those employing 0–4 people which received the lowest proportion (21%). At the industry level, Information media and telecommunications had the highest proportion of businesses which received orders via the Internet or web (41%), while the lowest proportion was recorded for Health care and social assistance (11%).

## Personal use

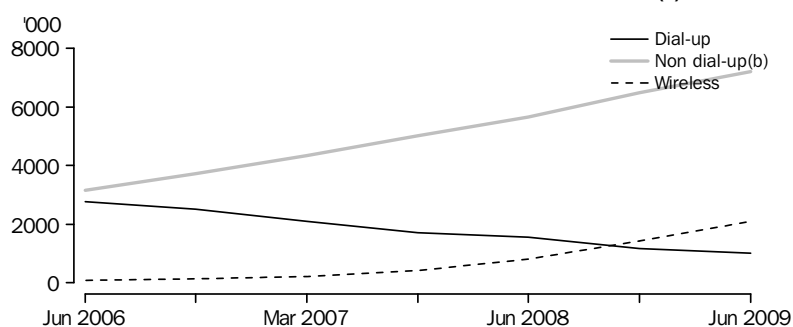
During 2008–09, three quarters (74%) of people aged 15 years or over accessed the internet in the previous 12 months (table 25.13). Home was the most popular location to access the internet for two thirds (68%) of people aged 15 years or over, followed by work (35%) and a neighbour's, friend's or relative's house (25%).

Use of the internet at any location was significantly higher than average (74%) for those with the following characteristics: people aged 15 to 17 years (94%); people from households in the top two income quintiles (93% for the highest and 87% for the second highest); people with higher levels of educational attainment (93% for people with a Bachelor degree or above); and the employed (85%). In contrast, older people (31% for people 65 or over), people with lower household incomes (44% for people in the lowest quintile), people not employed (54%) and Indigenous people (62%) reported significantly lower than average levels of internet access.

In 2008–09, 71% of people accessing the internet from home reported personal or private purposes as the main purpose of internet access, followed by work related purposes (17%) (see table 25.13). Work related purposes were reported more frequently as the main purpose of internet use at home among income earners in the highest income quintile (27%) and people with higher levels of educational attainment (27% of people with a Bachelor degree or higher).

The proportion of people accessing the internet at home who used the internet every day grew from 51% in 2007–08 to 58% in 2008–09. During 2008–09, two-thirds (67%) of people aged 15–34 years accessed the internet every day, compared with around half (52%) the people aged 35 years or more. Nearly all (94%) people with access to the internet used it at least weekly.

### 25.9 INTERNET SUBSCRIBERS BY ACCESS CONNECTIONS(a)



(a) For ISPs with more than 10,000 active subscribers. (b) Wireless subscribers are also included in Non dial-up.

Source: Internet Activity, Australia (8153.0).

### 25.10 INTERNET SUBSCRIBERS, By subscriber type and download speed—June 2009

	Number of subscribers '000	Proportion of subscribers %
<b>Business and Government Subscribers</b>		
Less than 256 kbps	215	3
<b>Broadband(a)</b>		
256kbps to less than 512kbps	124	1
512kbps to less than 1.5Mbps	166	2
1.5Mbps to less than 8Mbps	698	8
8Mbps to less than 24Mbps	147	2
24Mbps or greater	39	—
Total broadband (256kbps or greater)	1 174	14
<b>Total all download speeds</b>	<b>1 389</b>	<b>16</b>
<b>Household Subscribers</b>		
Less than 256 kbps	887	11
<b>Broadband(a)</b>		
256kbps to less than 512kbps	1 173	14
512kbps to less than 1.5Mbps	1 084	13
1.5Mbps to less than 8Mbps	1 831	22
8Mbps to less than 24Mbps	1 652	20
24Mbps or greater	404	5
Total broadband (256kbps or greater)	6 144	73
<b>Total all download speeds</b>	<b>7 031</b>	<b>84</b>
<b>All Subscribers</b>		
Less than 256 kbps	1 103	13
<b>Broadband(a)</b>		
256kbps to less than 512kbps	1 297	15
512kbps to less than 1.5Mbps	1 249	15
1.5Mbps to less than 8Mbps	2 529	30
8Mbps to less than 24Mbps	1 800	21
24Mbps or greater	443	5
Total broadband (256kbps or greater)	7 317	87
<b>Total all download speeds</b>	<b>8 420</b>	<b>100</b>

— nil or rounded to zero (including null cells)

(a) Broadband refers to an 'always on' Internet connection with an access speed equal to or greater than 256 kbps.

Source: Internet Activity, Australia (8153.0).

### 25.11 INTERNET COMMERCE(a)

		2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Businesses which							
Placed orders via the Internet or web	%	28	31	33	37	40	43
Received orders via the Internet or web	%	13	12	12	21	23	24
Internet income	\$b	24.3	33.3	39.6	56.7	67.6	81.0

(a) Proportions are of all businesses.

Source: Business Use of Information Technology (8129.0).

### 25.12 BUSINESS USE OF SELECTED TECHNOLOGIES, By employment size and industry—2007-08

	BUSINESSES	
	WHICH:	
	<i>Placed orders via the Internet or web</i>	<i>Received orders via the Internet or web</i>
	%	%
Employment size		
0-4 persons	37	21
5-19 persons	51	29
20-199 persons	59	32
200 or more persons	71	29
Industry		
Mining	46	14
Manufacturing	46	38
Electricity, gas, water and waste services	34	23
Construction	30	19
Wholesale trade	50	40
Retail trade	48	32
Accommodation and food services	33	17
Transport, postal and warehousing	28	17
Information, media and telecommunications	61	41
Financial and insurance services	50	19
Rental, hiring and real estate services	51	24
Professional, scientific and technical services	60	26
Administrative and support services	43	22
Health care and social assistance	39	11
Arts and recreation services	51	24
Other services	32	17
<b>Total</b>	<b>43</b>	<b>24</b>

Source: Business use of Information Technology (8129.0).

### Children's use of the internet and mobile phones

The 2009 Children's Participation in Cultural and Leisure Activities survey reported that of the 2.7 million children aged 5 to 14 years, 79% used the internet. Home was reported as the most common site of internet use (73%) followed by school (69%). Of the 2.0 million children accessing the internet at home in 2009, educational activities (85%) and playing online

games (69%) were the most common activities. Less than half (42%) of children who used the internet at home did so for 2 hours or less per week, while 4% were online for 20 hours or more.

In 2009 an estimated 841,000 children (31%) aged 5 to 14 years had access to their own mobile phones. Of these children, the majority (60%) used their mobile phone mostly to contact family. Only a small proportion of children (4%) used their mobile phone to access the internet.

### 25.13 USE OF INTERNET AT HOME, By main purpose—2008–09

Characteristics	No. of persons aged 15 years or over who used the Internet at home	Personal or private purposes	Work or business related purposes	Education or study related purposes	Voluntary or community purpose	Other purposes	Could not be determined
	'000	%	%	%	%	%	%
Age group (years)							
15–17	755	71	np	27	np	np	*2
18–24	1 659	75	np	20	np	np	**1
25–34	2 382	75	15	^8	—	*1	*1
35–44	2 461	68	24	^6	*1	—	*1
45–54	2 163	66	25	^7	*1	*1	*1
55–64	1 393	71	21	*3	^4	*1	*1
65 or over	779	80	^10	*2	^4	*2	*1
Sex							
Male	5 814	70	20	8	^1	—	^1
Female	5 777	73	13	11	^1	^1	^1
Personal income							
Less than \$40,000(a)	5 391	74	9	14	^1	—	^1
\$40,000–\$79,999	3 271	74	18	^6	*1	*1	^1
\$80,000–\$119,999	934	61	32	^5	**1	np	np
\$120,000 or over	529	49	46	*3	**2	np	np
Could not be determined	1 466	71	20	^5	*1	*1	*2
Equivalent household income quintiles							
Lowest quintile	827	69	^13	^16	*2	**1	—
Second quintile	1 568	75	^10	^12	^2	—	*1
Third quintile	1 910	75	14	^9	^1	*1	*1
Fourth quintile	2 241	74	17	7	*1	—	*1
Highest quintile	2 361	64	27	^7	*1	*1	^1
Could not be determined	2 684	72	15	10	^1	—	*1
Labour force status(b)							
Employed	8 647	70	21	7	^1	—	^1
Not employed	2 944	77	^3	15	^3	*1	*1
Indigenous							
Non Indigenous	11 491	71	17	9	np	np	np
Indigenous	^100	^66	*18	**10	np	np	np
Level of highest educational attainment							
Bachelor degree or above	2 989	60	27	10	^2	—	^1
Advanced diploma or diploma	1 361	73	17	^8	*1	**1	*1
Certificate	2 009	75	17	^5	*1	*1	*1
Year 12 or below	5 053	76	10	12	^1	*1	^1
State or territory							
New South Wales	3 776	71	17	10	*1	*1	*1
Victoria	2 951	72	16	10	^2	—	*1
Queensland	2 303	71	17	^9	*2	*1	*1
South Australia	824	71	15	11	*1	*1	*1
Western Australia	1 202	72	19	^7	*1	np	np
Tasmania	235	75	^16	^7	*1	np	np
Northern Territory	87	72	^18	*8	**1	—	**1
Australian Capital Territory	212	76	^14	^7	**2	np	np

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

\* estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes those persons with income less than zero.

(b) Labour force status in the week before the survey.

Source: Household Use of Information Technology, Australia 2008–09 (8146.0).

**25.13 USE OF INTERNET AT HOME, By main purpose—2008–09** *continued*

<i>Characteristics</i>	<i>No. of persons aged 15 years or over who used the Internet at home</i>	<i>Personal or private purposes</i>	<i>Work or business related purposes</i>	<i>Education or study related purposes</i>	<i>Voluntary or community purpose</i>	<i>Other purposes</i>	<i>Could not be determined</i>
	'000	%	%	%	%	%	%
Remoteness area							
Major cities of Australia	8 477	71	17	10	^ 1	—	^ 1
Inner regional Australia	2 134	73	16	^ 8	^ 2	—	*1
Outer regional Australia	844	71	^ 19	^ 8	np	np	*1
Remote Australia	^ 127	73	^ 20	**1	np	np	*3
Region							
Metropolitan areas	7 832	71	17	10	^ 1	—	^ 1
Ex-metropolitan areas	3 759	73	17	^ 8	^ 2	*1	^ 1
<b>Total</b>	<b>11 591</b>	<b>71</b>	<b>17</b>	<b>9</b>	<b>^ 1</b>	<b>—</b>	<b>^ 1</b>

— nil or rounded to zero (including null cells)

Source: Household Use of Information Technology, Australia 2008–09 (8146.0).

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### **ABS products**

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## RESEARCH AND INNOVATION

The information contained in this chapter presents a statistical picture of research and innovation in Australia. The application of research and innovation to business processes influences the strength and competitiveness of the economy by providing a basis for innovative change and encouraging economic growth and development.

There is a range of statistics relating to research and innovation in Australia, many of which are compiled by the Australian Bureau of Statistics (ABS). These statistics are based on standards developed by the Organisation for Economic Co-operation and Development (OECD) which enables international comparisons to be made with those member countries.

This chapter briefly describes key research and innovation statistics, and highlights the main features and recent trends.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Research and experimental development (R&D)

The OECD defines Research and Experimental Development (R&D) as comprising creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications.

R&D activity is characterised by originality. It has investigation as a primary objective, the outcome of which is new knowledge, with or without a specific practical application, or new or improved materials, products, devices, processes or services. R&D ends when work is no longer primarily investigative.

Statistics on the amount of expenditure and human resources devoted to R&D effort in the business sector are collected annually by the ABS, while comparable statistics on the government, higher education and private non-profit sectors are collected biennially.

In 2006–07, gross expenditure on R&D was \$21,000 million (m) (table 26.1). This represented an increase of 31.5% over 2004–05. The business sector accounted for the largest proportion of gross expenditure on R&D in 2006–07 (57.3%), followed by higher education (25.7%). All sectors posted growth in expenditure on R&D since 2004–05, with the highest percentage growth reported for the business sector (38.7%) and lowest for the government sector (18.8%).

In 2006–07, human resources devoted to R&D totalled 125,771 person-years of effort, an increase of 8.2% since 2004–05. The majority of human resources devoted to R&D came from the

higher education sector (46.8%), followed by the business sector (36.6%).

## Business sector

During 2007–08, business expenditure on R&D in Australia was \$14,380m, which represented an increase of 14.6% from 2006–07, in current prices. After adjusting for price changes, the growth in expenditure (in volume terms) was 9.1% for the same period.

In 2007–08, the largest industry contributions to business expenditure on R&D were Manufacturing (\$4,305m), Mining (\$3,283m) and Professional, scientific and technical services (\$2,230m) (graph 26.2). Of all industries, Mining and Manufacturing reported the largest absolute growth from 2006–07, increasing their expenditure on R&D by 18.4% and 12.2% respectively.

Funding of R&D for the business sector in 2007–08 was largely from businesses within the sector: 93.1% coming from businesses' own funds and 2.4% from other businesses. Government funding accounted for 3.0% (mainly Commonwealth Government), while a further 1.3% of funding was derived from overseas. Industries with the largest amounts of funding sourced from government were Professional, scientific and technical services (\$223m) and Manufacturing (\$119m).

The ABS's socio-economic objective (SEO) classification defines the main areas of Australian economic and social activity to which the results of research programs are applied. In short, it describes the purpose of the research, i.e., the broad socio-economic areas of expected benefit

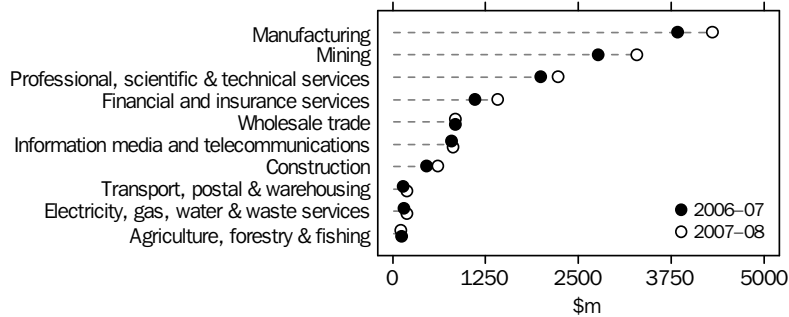
### 26.1 GROSS EXPENDITURE ON R&D(a)—By Sector

	1996–97	1998–99	2000–01	2002–03	2004–05	2006–07
	\$m	\$m	\$m	\$m	\$m	\$m
Business	4 235	4 095	4 983	6 940	8 676	12 036
Government						
Commonwealth	1 267	1 179	1 405	1 531	1 544	1 893
State/territory	798	864	951	951	942	1 061
Total	2 064	2 043	2 356	2 482	2 486	2 954
Higher education	2 308	2 555	2 790	3 430	4 327	5 404
Private non-profit	186	225	289	360	479	606
<b>Total</b>	<b>8 792</b>	<b>8 918</b>	<b>10 417</b>	<b>13 212</b>	<b>15 969</b>	<b>21 000</b>

(a) In current prices.

Source: Research and Experimental Development, All sector summary, Australia 2006–07 (8112.0).

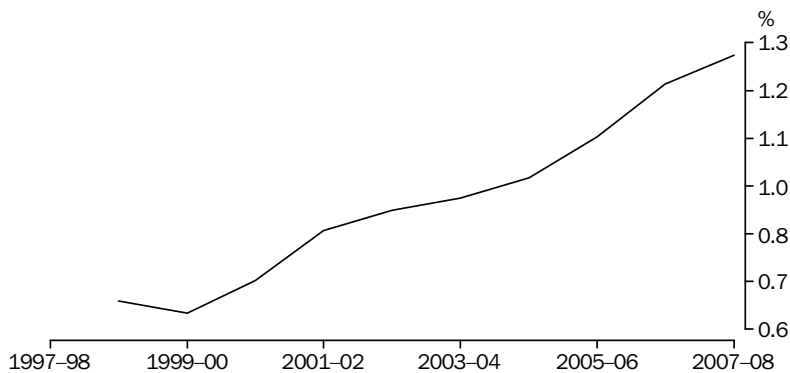
## 26.2 BUSINESS SECTOR EXPENDITURE ON R&D, Selected industries(a) (b)



(a) Ranked by 2007–08 business expenditure on R&D (BERD). (b) Classified according to the Australian and New Zealand Industrial classification, 2006 edition.

Source: Research and Experimental Development, Businesses, Australia (8104.0).

## 26.3 BUSINESS SECTOR EXPENDITURE ON R&D, Proportion of GDP



Source: Research and Experimental Development, Businesses, Australia (8104.0).

rather than the immediate objectives of the research.

The largest amounts of R&D expenditure for 2007–08 occurred on the following SEOs: Manufacturing, which accounted for 31.4% of total expenditure, Mineral resources (excluding energy resources), which accounted for a further 14.3% and Energy (14.1%).

In 2007–08, the largest expenditure on R&D occurred in the following fields of research: Engineering which accounted for \$7,921m or 55.1% and Information and computing sciences which accounted for \$3,678m or 25.6%.

Human resources devoted to R&D in 2007–08 totalled 49,114 person-years of effort, an increase of 6.0% over 2006–07.

Business expenditure on R&D in 2007–08 was 1.27% of Australia's gross domestic product (GDP), an increase from 1.20% in the previous year (graph 26.3). This places Australia's business expenditure on R&D at 14th for the GDP ratio when compared with other OECD countries. Australia remains below the OECD average of 1.59% (table 26.4).

### Higher education sector

In 2006, higher education sector expenditure on R&D in Australia was \$5,404m. This represented an increase on 2004 expenditure of 24.9% in current prices (15.1% in volume terms). Higher education expenditure on R&D as a proportion of GDP increased from 0.48% in 2004 to 0.52% in 2006 (graph 26.5).

## 26.4 BUSINESS EXPENDITURE ON R&D/GDP RATIOS OF OECD COUNTRIES(a)

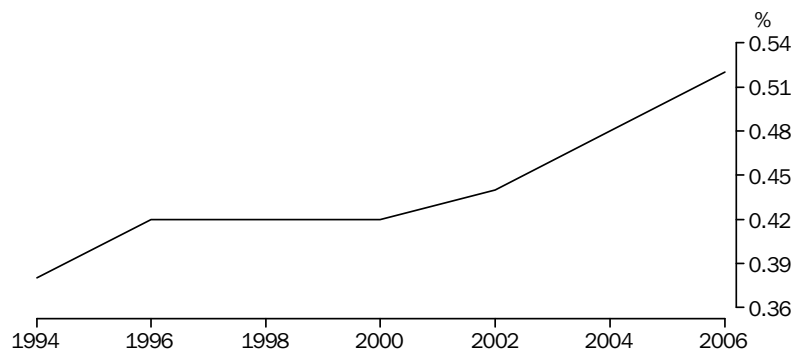
	2003-04	2004-05	2005-06	2006-07	2007-08
	%	%	%	%	%
Japan	2.40	2.38	2.54	2.63	2.68
Sweden	2.86	2.66	2.62	2.79	2.66
Korea, Republic of (South)	2.00	2.18	2.29	2.49	2.65
Finland	2.42	2.42	2.47	2.46	2.51
Switzerland	na	2.14	na	na	na
United States of America	1.84	1.79	1.83	1.89	1.93
Austria	na	1.53	1.70	1.73	1.81
Germany	1.76	1.74	1.72	1.77	1.78
Denmark	1.78	1.69	1.68	1.66	1.66
Iceland	1.46	na	1.43	1.59	1.50
Luxembourg	1.47	1.43	1.35	1.43	1.36
France	1.36	1.36	1.30	1.32	1.31
Belgium	1.31	1.29	1.25	1.30	1.30
Australia	0.92	0.97	1.08	1.20	1.27
United Kingdom	1.11	1.06	1.06	1.08	1.15
Canada	1.16	1.18	1.15	1.11	1.05
Netherlands	1.01	1.03	1.01	1.02	1.03
Czech Republic	0.76	0.79	0.91	1.03	0.98
Ireland	0.79	0.81	0.82	0.88	0.88
Norway	0.98	0.87	0.82	0.82	0.88
Spain	0.57	0.58	0.60	0.67	0.71
Portugal	0.24	0.28	0.31	0.47	0.61
Italy	0.52	0.52	0.55	0.55	0.55
New Zealand	0.48	na	0.48	na	0.51
Hungary	0.34	0.36	0.41	0.48	0.49
Turkey	0.11	0.12	0.20	0.22	0.29
Mexico	0.14	0.20	0.23	na	na
Slovak Republic	0.32	0.25	0.25	0.21	0.18
Poland	0.15	0.16	0.18	0.18	0.17
Greece	0.18	0.17	0.18	0.17	0.16
<b>Total OECD</b>	<b>1.50</b>	<b>1.48</b>	<b>1.51</b>	<b>1.56</b>	<b>1.59</b>

na not available

(a) Ranked by 2007-08 BERD/GDP ratio.

Source: Main Science and Technology Indicators, 2009/1, OECD.

## 26.5 HIGHER EDUCATION SECTOR EXPENDITURE ON R&D, Proportion of GDP



Source: Research and Experimental Development, Higher Education Organisations, Australia (8111.0).

In 2006, the largest amount of higher education R&D expenditure was devoted to the research field of Medical and health sciences (26.9%). This was followed by Engineering and technology (11.0%), and Biological sciences (10.4%). Funding for the R&D was primarily sourced from general university funds (\$3,199.5m or 59.2%) and Australian competitive research grants (\$979.8m or 18.1%).

Australian higher education organisations devoted a total of 58,810 person-years of effort to R&D in 2006, up 6.5% from 2004.

### Government sector

Expenditure by government sector organisations on R&D in 2006–07 was \$2,954.1m. This represented an increase of 18.8% in current prices over 2004–05, and 10.2% in volume terms. The largest amounts of expenditure on R&D occurred in the research fields of Agriculture, veterinary and environmental science (\$849.9m), Engineering and technology (\$493.4m) and Medical and health sciences (\$379.6m). Together, these three research fields accounted for over half of the total Government expenditure on R&D in 2006–07.

In 2006–07, expenditure by government organisations on R&D as a proportion of GDP remained unchanged from 2004–05 at 0.28% (graph 26.6). This places Australia in 9th position in relation to other OECD countries, and above the average for all OECD countries of 0.26%.

Human resources devoted to R&D in 2006–07, in the government sector, totalled 16,338 person-years of effort, down 2% from 2004–05.

### Private non-profit sector

Expenditure on R&D by private non-profit sector organisations in 2006–07 was \$606.3m, an increase of 26.5% in current prices over 2004–05, or 15.8% in volume terms. The largest amount of R&D expenditure in the private non-profit sector was devoted to the research field of Medical and health sciences (\$457.9m) which comprised three quarters of total R&D expenditure in this sector.

A total of 4,596 person-years of effort was devoted to R&D by private non-profit organisations in 2006–07. This represented an increase of 19.5% since 2004–05.

### Innovation activity of businesses

Innovation is generally considered to be the development, introduction or implementation of new or significantly improved goods, services or processes. Innovation is a key driver of economic growth.

The 2007–08 innovation data were collected in the 2007–08 Business Characteristics Survey (BCS). This survey collected information about four broad types of innovative activity undertaken by businesses in Australia: goods or services; operational processes; organisational/managerial processes; and marketing methods.

**26.6 GOVERNMENT SECTOR EXPENDITURE ON R&D, Proportion of GDP**



Source: *Research and Experimental Development, Government and Private Non-Profit Organisations, Australia (8109.0)*.

## 26.7 BUSINESSES INVOLVED IN INNOVATION(a)(b)

	%
Businesses which introduced or implemented:	
Any new or significantly improved goods or services	21.9
Any new or significantly improved operational processes	17.6
Any new or significantly improved organisational/managerial processes	19.0
Any new or significantly improved marketing methods	14.6
Any of the above (i.e. Innovating businesses)	39.1
Businesses with innovative activity which was still in development(c)	22.5
Businesses with innovative activity which was abandoned(c)	6.9
Proportion of businesses that were innovation-active	44.9

(a) Proportions are of all businesses.

(b) During 2007–08.

(c) Innovative activity includes any work that was intended to result in the introduction or implementation of new or significantly improved goods, services or processes.

Source: Selected Characteristics of Australian Business, 2007–08 (8167.0).

## 26.8 BUSINESSES INVOLVED IN INNOVATION(a), Selected characteristics(b)

	BUSINESSES WHICH:			
	<i>were innovating</i>	<i>started but not yet complete any innovative activity</i>	<i>started but abandoned any innovative activity</i>	<i>were innovation-active</i>
	%	%	%	%
Employment size				
0–4 persons	31.6	17.9	5.7	37.0
5–19 persons	49.8	28.6	9.4	56.1
20–199 persons	60.0	35.5	8.4	65.9
200 or more persons	65.9	46.2	6.8	70.8
Industry(c)				
Mining	39.0	26.4	5.5	48.9
Manufacturing	45.6	31.1	9.9	53.4
Electricity, gas, water and waste services	40.8	24.3	3.9	47.4
Construction	27.3	13.8	3.8	31.1
Wholesale trade	51.4	33.8	12.1	59.3
Retail trade	50.9	23.9	9.0	56.6
Accommodation and food services	38.6	19.8	8.5	43.2
Transport, postal and warehousing	31.3	15.0	3.3	35.2
Information media and telecommunications	45.1	30.2	7.4	55.4
Financial and insurance services	42.7	21.2	6.4	47.1
Rental, hiring and real estate	40.5	22.5	6.0	47.5
Professional, scientific and technical services	43.9	28.3	7.2	50.3
Administrative and support services	36.7	21.2	4.2	43.8
Health care and social assistance	30.4	20.8	5.4	35.7
Arts and recreation services	35.4	21.2	6.4	44.4
Other services	38.2	22.1	10.2	44.1
<b>Total</b>	<b>39.1</b>	<b>22.5</b>	<b>6.9</b>	<b>44.9</b>

(a) During 2007–08.

(b) Proportions are of businesses in each category.

(c) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.

Source: Summary of IT Use and Innovation in Australian Business (8166.0).

The survey also covered three statuses of innovation: introduced or implemented; still in development; and abandoned.

Based on the combination of type and status of innovative activity, two statistical measures of business innovation have been produced:

- *Innovating businesses* – businesses that introduced or implemented an innovation during the survey reference period.
- *Innovation-active businesses* – businesses that had undertaken any innovative activity, including the introduction or implementation of an innovation, and/or businesses with an incomplete and/or abandoned innovative activity.

During 2007–08, innovating businesses in Australia represented 39.1% of all businesses; innovation which was incomplete at end-June 2008 was undertaken by 22.5% of all businesses; innovation which had been abandoned during the year was undertaken by 6.9% of all businesses; and 44.9% of businesses were innovation-active in the period (table 26.7).

The proportion of innovating businesses increased with business size, ranging from 31.6% for businesses with 0–4 people employed, to 65.9% for those businesses with 200 or more people employed. At the industry level, Wholesale trade had the highest proportion of innovating businesses (51.4%), followed by Retail trade (50.9%) (table 26.8).

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## FINANCIAL SYSTEM

The financial system in Australia can be thought of as having three overlapping components. The first consists of financial enterprises (such as banks) and regulatory authorities (such as the Reserve Bank and the Australian Prudential Regulation Authority). The second consists of financial markets (e.g. the bond market) and their participants (issuers such as governments, and investors such as superannuation funds). The third is the payments system (that is, the cash, cheque and electronic means by which payments are effected) and its participants (e.g. banks). The interaction of these three components enables funds for investment or consumption to be made available from savings in other parts of the national or international economy.

This chapter provides a summary of the structure and activities of the three components of the Australian financial system.

This chapter contains the article *The Global Financial Crisis and its Impact on Australia*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Regulatory framework

From 1 July 1998, a new financial regulatory framework came into effect, in response to the recommendations of the Financial System Inquiry (Wallis Committee). Under the new structure, a single prudential supervisor, the Australian Prudential Regulation Authority (APRA), was established to take responsibility for the supervision of banks, life and general insurance companies, and superannuation funds. The Australian Securities and Investments Commission assumed responsibility for market integrity and consumer protection across the financial system. The Reserve Bank retained responsibility for monetary policy and the maintenance of financial stability, including stability of the payments system.

From 1 July 1999, regulation of building societies and credit unions transferred from the states to APRA. On 1 July 2000, regulation of self-managed superannuation funds was transferred from APRA to the Australian Taxation Office (ATO).

From September 2001, the *Financial Sector (Collection of Statistics) Act 2001* (Cwlth) provided APRA with powers to collect information previously collected under a range of legislation. The new legislation enables harmonised and consistent data collection from financial institutions. APRA commenced data collection from registered financial corporations from March 2003.

Health benefit funds of friendly societies are regulated by the Private Health Insurance Administration Council under the *National Health Act 1959* (Cwlth), while APRA supervises other benefit funds of friendly societies under the *Life Insurance Act 1995* (Cwlth).

## Inter-sectoral financial flows

The data collected by APRA are combined with data from other sources by the Australian Bureau of Statistics (ABS) to compile a set of financial accounts according to the international standard, the *System of National Accounts 1993*. Diagram 27.1 provides an overview of the flows of capital through the financial system and summarises the end result of applying the current statistical framework. It illustrates the net financial flows between sectors during the year 2008–09. The arrows show the net flow from lenders to

borrowers. For example, there was a \$48.4 billion (b) net flow from the households sector to financial corporations, an \$11.2b net flow from non-financial corporations to financial corporations, and a \$32.5b net flow from the financial corporations sector to the general government sector.

## Financial enterprises

Financial enterprises are institutions which engage in acquiring financial assets and incurring liabilities, for example, by taking deposits, borrowing and lending, providing superannuation, supplying all types of insurance cover, leasing, and investing in financial assets.

For national accounting purposes, financial enterprises are grouped into six sectors: Depository corporations; Life insurance corporations; Pension funds; Other insurance corporations; Central borrowing authorities; and Financial intermediaries n.e.c..

*Depository corporations* – are those included in the Reserve Bank of Australia's *broad money* measure (see *Money supply measures*). This includes: the Reserve Bank; authorised depository institutions supervised by APRA, including banks, building societies and credit unions; non-supervised depository corporations registered under the *Financial Statistics (Collection of Data) Act 2001* (Cwlth), including merchant banks, pastoral finance companies, finance companies and general financiers; and cash management trusts.

*Life insurance corporations* – cover the statutory and shareholders' funds of life insurance companies, and similar activities undertaken by friendly societies and long-service-leave boards.

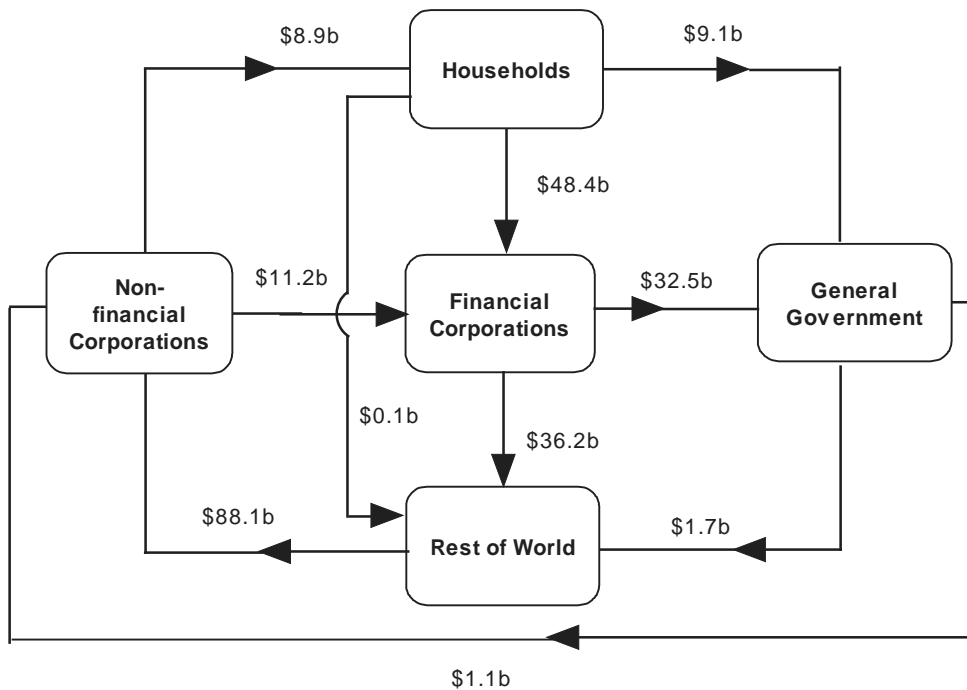
*Pension funds* – cover separately constituted superannuation funds.

*Other insurance corporations* – cover health, export and general insurance companies.

*Central borrowing authorities* – are corporations set up by state and territory governments to provide financial liability and asset management services for those governments.

*Financial intermediaries n.e.c.* – cover common funds, mortgage, fixed interest and equity unit trusts, issuers of asset-backed securities,

## 27.1 INTER-SECTORAL FINANCIAL FLOWS—2008–09



Source: Australian National Accounts: Financial Accounts (5232.0).

## 27.2 FINANCIAL INSTITUTIONS, Financial assets—30 June

	DEPOSITORY CORPORATIONS			Life insurance corporations	Pension funds	Other insurance corporations	Central borrowing authorities	Financial intermediaries n.e.c.	Consolidated financial sector total
	Reserve Bank	Banks	Other						
	\$b	\$b	\$b	\$b	\$b	\$b	\$b	\$b	\$b
2004	65.2	1 127.0	223.8	191.5	587.8	97.8	100.8	317.5	1 981.0
2005	75.5	1 243.0	250.6	212.8	666.3	102.7	113.9	348.7	2 181.1
2006	94.9	1 418.6	262.5	233.6	815.0	115.7	114.7	442.2	2 566.3
2007	113.9	1 656.5	333.3	261.1	1 070.8	133.9	127.5	592.9	3 128.1
2008	92.9	1 984.6	383.1	239.4	1 014.8	129.5	146.8	563.3	3 282.2
2009	101.5	2 131.6	364.6	223.1	909.9	126.4	186.2	557.9	3 263.1

Source: Australian National Accounts: Financial Accounts (5232.0).

economic development corporations and cooperative housing societies.

Table 27.2 shows the relative size of these sectors in terms of their financial assets. This table has been compiled on a consolidated basis, that is, financial claims between institutions in the same grouping have been eliminated. The total is also consolidated, that is, financial claims between the groupings have been eliminated. For this reason, and because there are a number of less significant

adjustments made for national accounting purposes, the statistics in the summary table will differ from those presented later in this chapter and published elsewhere.

### Banks

Between 1940 and 1959, central banking business was the responsibility of the Commonwealth Bank. The *Reserve Bank Act 1959* (Cwlth) established the Reserve Bank of Australia as the

central bank, and from 1959 to 1998 the Reserve Bank was responsible for the supervision of commercial banks. From 1 July 1998, APRA assumed responsibility for bank supervision while the Reserve Bank retained responsibility for monetary policy and the maintenance of financial stability, including stability of the payments system.

Banks are the largest deposit-taking and financial institutions in Australia. At the end of June 2009 there were 57 banks operating in Australia. All are authorised to operate by the *Banking Act 1959* (Cwlth). The major banks account for over half the total assets of all banks. These four banks provide widespread banking services and an extensive retail branch network throughout Australia. The remaining banks provide similar banking services through limited branch networks, often located in particular regions. At 30 June 2009, banking services were provided at 27,108 Automatic Teller Machines (ATMs) throughout Australia.

### 27.3 RESERVE BANK OF AUSTRALIA, Financial assets and liabilities

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Monetary gold and SDRs(a)	2 195	2 679	3 172
Currency and deposits	54 166	10 606	11 702
Bills of exchange	1 502	762	133
One name paper	12 971	38 792	9 654
Bonds	42 647	39 643	75 657
Derivatives	—	—	—
Loans and placements	18	10	8
Other accounts receivable	361	412	1 130
<b>Total</b>	<b>113 860</b>	<b>92 904</b>	<b>101 456</b>
<b>LIABILITIES</b>			
Currency and deposits	104 432	79 683	81 685
Derivatives	6	—	—
Unlisted shares and other equity(b)	9 703	10 616	11 964
Other	13 122	9 678	8 626
<b>Total</b>	<b>127 263</b>	<b>99 977</b>	<b>102 275</b>

— nil or rounded to zero (including null cells)

(a) Special Drawing Rights.

(b) Estimates based on net asset values.

Source: Australian National Accounts: Financial Accounts (5232.0).

The liabilities and financial assets of the Reserve Bank are set out in table 27.3. The liabilities and financial assets of the banks operating in Australia are shown in table 27.4.

### Other depository corporations

Other depository corporations are defined as those, apart from banks, with liabilities included in the Reserve Bank's definition of *broad money*. These include building societies, credit cooperatives, cash management trusts, money market corporations, merchant banks and finance companies.

The *Financial Corporations Act 1974* (Cwlth) ceased on 1 July 2002. Corporations previously subject to the *Financial Corporations Act 1974* (Cwlth) were then required to report statistical data to APRA as Registered Financial Corporations. From 31 March 2003, following changes to the *Financial Statistics (Collection of Data) Act 2001* (Cwlth), only the following categories of other depository corporations are required to report to APRA:

- *Permanent building societies* are usually organised as financial cooperatives. They are authorised to accept money on deposit. They provide finance principally in the form of housing loans to their members.
- *Credit cooperatives*, also known as credit unions, are similar to building societies. As their name implies, they are organised as financial cooperatives which borrow from and provide finance to their members.
- *Money market corporations* operate similar to wholesale banks and for this reason they are often referred to as merchant or investment banks. They have substantial short-term borrowings which they use to fund business loans and investments in debt securities.
- *Other registered financial corporations* covers pastoral finance companies, finance companies and general financiers categories. These corporations engage in a variety of borrowing and lending activity.

The remaining category of other depository corporations is *Cash management trusts*. These are investment funds that are open to the public. They are not subject to supervision by APRA or registered under the *Financial Statistics (Collection of Data) Act 2001* (Cwlth). They invest the pooled monies of their unit holders mainly in money-market securities such as bills of

## 27.4 BANKS(a), Financial assets and liabilities

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	70 339	106 245	138 538
Acceptance of bills of exchange	125 417	142 062	149 799
One name paper	23 694	33 095	32 425
Bonds	46 442	106 122	192 384
Derivatives	72 339	130 822	119 282
Loans and placements	1 174 707	1 344 108	1 387 078
Equities	135 145	111 547	103 367
Prepayments of premiums and reserves	2 001	2 059	2 213
Other accounts receivable	6 413	8 578	6 556
<b>Total</b>	<b>1 656 497</b>	<b>1 984 638</b>	<b>2 131 642</b>
<b>LIABILITIES</b>			
Currency and deposits	814 183	929 822	1 104 935
Acceptance of bills of exchange	54 991	55 892	53 515
One name paper	253 154	334 224	240 831
Bonds	267 356	318 810	396 253
Derivatives	84 329	135 159	123 545
Loans and placements	49 977	77 183	116 156
Equity	320 050	234 255	239 977
Other accounts payable	5 860	9 120	10 138
<b>Total</b>	<b>1 849 900</b>	<b>2 094 465</b>	<b>2 285 350</b>

(a) Does not include the Reserve Bank of Australia.

Source: Australian National Accounts: Financial Accounts (5232.0).

## 27.5 OTHER DEPOSITORY CORPORATIONS, Total assets

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
Permanent building societies	20 563	22 150	21 484
Credit cooperatives	38 709	42 468	46 005
Money market corporations	106 702	121 935	94 512
Other registered financial corporations	116 070	127 835	119 830
Cash management trusts	46 745	47 357	43 819
<b>Total</b>	<b>328 789</b>	<b>361 745</b>	<b>325 650</b>

Source: Managed Funds, Australia (5655.0); APRA; Reserve Bank of Australia.

exchange and bank certificates of deposit. As with other public unit trusts their operations are governed by a trust deed and their units are redeemable by the trustee on demand or within a short time period.

Table 27.5 shows the total assets of each category of non-bank deposit-taking institution.

## Life insurance corporations

Life insurance corporations offer termination insurance and investment policies. Termination insurance includes the payment of a sum of money on the death of the insured or on the insured receiving a permanent disability. Investment products include annuities and superannuation plans. The life insurance industry in Australia consists of 32 direct insurers, including 6 reinsurers. As with the banking

industry, the life insurance industry is dominated by a few very large companies which hold a majority of the industry's assets.

Life insurance companies are supervised by APRA under the *Life Insurance Act 1995* (Cwlth). APRA also regulates friendly societies which offer services similar to life insurance corporations, and consist of 19 societies.

Table 27.6 shows the financial assets and liabilities arising from both policyholder and shareholder investment in life insurance corporations and APRA regulated friendly societies.

## Pension funds

Pension funds have been established to provide retirement benefits for their members. Members make contributions during their employment and receive the benefits of this form of saving in retirement. There are two basic types of contribution – employer contributions in the form of the superannuation guarantee and voluntary member contributions. In order to

receive concessional taxation treatment, a pension fund must elect to be regulated under the *Superannuation Industry (Supervision) Act 1993* (Cwlth) (SIS Act).

These funds are supervised by either APRA or the ATO. Some public sector funds are exempt from direct APRA supervision, but are required to report to APRA under an agreement between the Commonwealth Government and each of the state and territory governments.

The largest group of pension funds is self-managed superannuation funds. From 1 July 2000, the ATO assumed responsibility for regulating self-managed superannuation funds.

Self-managed superannuation funds are superannuation funds that have less than five members and generally all members of the fund need to be trustees or directors of a company which is a trustee.

Corporate funds are established for the benefit of employees of a particular entity or a group of related entities, with joint member and employer

### 27.6 LIFE INSURANCE CORPORATIONS, Financial assets and liabilities

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	13 183	9 795	13 679
Bills of exchange	2 043	1 830	3 317
One name paper	14 006	12 311	13 720
Bonds	47 773	45 562	47 284
Derivatives	248	354	3 820
Loans and placements	4 572	4 737	4 895
Equities	174 526	158 166	129 482
Other accounts receivable	4 747	6 665	6 911
<b>Total</b>	<b>261 098</b>	<b>239 420</b>	<b>223 108</b>
<b>LIABILITIES</b>			
Bills of exchange	9	5	5
Bonds etc. issued in Australia	—	—	—
Bonds etc. issued offshore	1 488	1 825	1 541
Derivatives	—	-37	3 060
Loans and placements	1 490	2 434	2 899
Listed and unlisted equity	37 220	26 212	23 439
Net equity in reserves	54 833	58 741	61 467
Net equity of pension funds	182 801	166 208	146 494
Other accounts payable	9 669	4 896	4 304
<b>Total</b>	<b>287 510</b>	<b>260 284</b>	<b>243 209</b>

— nil or rounded to zero (including null cells)

Source: Australian National Accounts: Financial Accounts (5232.0).

## 27.7 PENSION FUNDS—30 June

Type of fund	NUMBER OF ENTITIES		
	2006	2007	2008
Corporate	555	287	226
Industry	80	72	70
Public sector	45	40	40
Retail	192	176	169
Small funds(a)	323 200	363 112	393 611
Pooled superannuation trusts	123	101	90
<b>Total</b>	<b>324 195</b>	<b>363 788</b>	<b>394 206</b>

(a) Small funds include small APRA funds, single member approved deposit funds and self managed superannuation funds.

Source: Australian Prudential Regulation Authority.

control. Industry funds generally have closed memberships restricted to the employees of a particular industry and are established under an agreement between the parties to an industrial award.

Public sector funds provide benefits for government employees, or are schemes established by a Commonwealth, state or territory law. Retail funds offer superannuation products to the public on a commercial basis. All eligible rollover funds and multi-member approved deposit funds are also classified as retail funds.

Superannuation funds regulated by APRA with less than five members and an Extended Public Offer Entity Licensee are known as small APRA funds.

In addition to separately constituted funds, the SIS Act also provides for special accounts operated by financial institutions earmarked for superannuation contributions, known as Retirement Savings Accounts, that also qualify for concessional taxation and are under the supervision of APRA. The liabilities represented by these accounts are liabilities of the institutions concerned and are included with the relevant institution in this chapter (e.g. retirement savings accounts operated by banks are included in bank deposits in table 27.4).

The number of pension funds is shown in table 27.7. The assets of pension funds are shown in table 27.8. The assets in the table do not separately identify any provision for the pension liabilities of governments to public sector employees in respect of unfunded retirement benefits. These pension liabilities are recorded in the government accounts. At 30 June 2009, the ABS estimate for claims by households on governments for these outstanding liabilities was \$195.4b.

## 27.8 PENSION FUNDS, Financial assets

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	133 103	138 724	165 768
Bills of exchange	12 870	13 134	14 608
One name paper	22 690	25 946	30 621
Bonds	82 040	94 872	99 174
Loans and placements	6 532	6 686	7 730
Equities	610 403	553 088	433 120
Unfunded superannuation claims	17	45	29
Net equity of pension funds in life office reserves	182 801	166 208	146 494
Other accounts receivable	20 385	16 092	12 380
<b>Total</b>	<b>1 070 841</b>	<b>1 014 795</b>	<b>909 924</b>
<b>LIABILITIES</b>			
Loans and placements	1 104	1 491	1 882
Net equity in reserves	1 114 474	1 065 183	966 747
Other accounts payable	7 487	7 223	3 844
<b>Total</b>	<b>1 123 065</b>	<b>1 073 897</b>	<b>972 473</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

## Other insurance corporations

This sector includes all corporations that provide insurance other than life insurance. Included are general, fire, accident, employer liability, household, health and consumer credit insurers.

Private health insurers are regulated by the Private Health Insurance Administration Council under the *National Health Act 1959* (Cwlth). At 30 June 2009, there were 37 private health insurers, including health benefit funds of friendly societies. Other private insurers are supervised by APRA under the *Insurance Act 1973* (Cwlth). At 30 June 2009, there were 107 insurers authorised to conduct new or renewal general insurance supervised by APRA. There are 10 separately constituted public sector insurance corporations with significant assets. Table 27.9 shows the financial assets and liabilities of other insurance corporations.

## Central borrowing authorities

Central borrowing authorities are institutions established by the state governments and the

Northern Territory Government primarily to provide finance for public corporations and quasi-corporations, and other units owned or controlled by those governments. They also arrange investment of the units' surplus funds. The central borrowing authorities borrow funds, mainly by issuing securities, and on-lend them to their public sector clientele. However, they also engage in other financial intermediation activity for investment purposes, and may engage in the financial management activities of the parent government.

Table 27.10 shows the financial assets and liabilities held by the central borrowing authorities.

## Financial intermediaries not elsewhere classified (n.e.c.)

This subsector comprises all institutions that meet the definition of a financial enterprise and have not been included elsewhere. It includes:

### 27.9 OTHER INSURANCE CORPORATIONS, Financial assets and liabilities

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	9 699	15 213	15 833
Bills of exchange	2 135	1 989	2 632
One name paper	9 568	9 114	7 997
Bonds	36 532	36 759	37 929
Derivatives	27	74	1 009
Loans and placements	5 438	5 248	4 752
Equities	50 356	41 579	34 126
Other accounts receivable	20 172	19 563	22 139
<b>Total</b>	<b>133 927</b>	<b>129 539</b>	<b>126 417</b>
<b>LIABILITIES</b>			
Bills of exchange	15	18	24
One name paper on issue	423	578	695
Bonds on issue	3 182	3 268	2 383
Derivatives	—	—	794
Loans and placements	2 962	3 065	2 954
Listed shares and other equity	37 612	27 245	28 058
Unlisted shares and other equity	35 731	34 421	32 153
Prepayment of premiums	66 646	68 624	73 790
Other accounts receivable	9 832	6 987	7 873
<b>Total</b>	<b>156 403</b>	<b>144 206</b>	<b>148 724</b>

— nil or rounded to zero (including null cells)

Source: Australian National Accounts: Financial Accounts (5232.0).

## 27.10 CENTRAL BORROWING AUTHORITIES, Financial assets and liabilities

	AMOUNTS OUTSTANDING AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	4 631	3 918	6 619
Bills of exchange	7 322	6 287	6 239
One name paper	18 750	18 547	19 254
Bonds	5 663	5 649	5 877
Derivatives	10 083	16 149	14 824
Loans and placements	79 426	94 546	129 488
Other accounts receivable	1 625	1 713	3 896
<b>Total</b>	<b>127 500</b>	<b>146 809</b>	<b>186 197</b>
<b>LIABILITIES</b>			
Drawings of bills of exchange	—	—	—
One name paper	6 224	9 735	18 302
Bonds	89 158	97 665	127 700
Derivatives	9 261	16 125	15 700
Loans and placements	14 945	18 500	15 348
Equity	30	30	30
Other accounts payable	1 324	2 267	2 867
<b>Total</b>	<b>120 942</b>	<b>144 322</b>	<b>179 947</b>

— nil or rounded to zero (including null cells)

Source: Australian National Accounts: Financial Accounts (5232.0).

*Public unit trusts* – are investment funds open to the Australian public. Their operations are governed by a trust deed which is administered by a management company. Under the *Managed Investments Act 1997* (Cwlth), the management company has become the single responsible entity for both investment strategy and custodial arrangements; the latter previously had been the responsibility of a trustee. These trusts allow their unit holders to dispose of their units relatively quickly. They may sell them back to the manager if the trust is unlisted, or sell them on the Australian Stock Exchange (ASX) if the trust is listed. While public unit trusts are not subject to supervision by APRA or registered under the *Financial Statistics (Collection of Data) Act 2001* (Cwlth), they are subject to the provisions of corporations law which includes having their prospectus registered with ASIC.

*Common funds* – are set up by trustee companies and are governed by state Trustee Acts. They allow the trustee companies to combine depositors' funds and other funds held in trust in

an investment pool. They are categorised according to the main types of assets in the pool, for example, cash funds or equity funds.

*Securitisers* – issue short- and/or long-term debt securities which are backed by specific assets. The most common assets bought by securitisation trusts/companies are residential mortgages. These mortgages are originated by financial institutions such as banks and building societies or specialist mortgage managers. Other assets can also be used to back these securities, such as credit card receivables and financial leases. Securitisers generally pool the assets and use the income on them to pay interest to the holders of the asset-backed securities.

*Cooperative housing societies* – are similar to permanent building societies. In the past they were wound up after a set period, but now are continuing bodies. They raise money through loans from members (rather than deposits) and provide finance to members in the form of housing loans. Over recent years many cooperative housing societies have originated mortgages on behalf of securitisers.

*Investment companies* – are similar to equity trusts in that they invest in the shares of other companies. However, investors in investment companies hold share assets, not unit assets.

*Fund managers, insurance brokers and arrangers of hedging instruments* – are classified as financial auxiliaries as they engage primarily in activities closely related to financial intermediation, but they themselves do not perform an intermediation role. Auxiliaries primarily act as agents for their clients (usually other financial entities) on a fee-for-service basis, and as such the financial asset remains on the balance sheet of the client, not the auxiliary. However, a small portion of the activities of auxiliaries is brought to account on their own balance sheet, and these amounts are included in table 27.11.

*Economic development corporations* – are owned by governments. As their name implies, these bodies are expected to finance infrastructure developments mainly in their home state or territory.

*Wholesale trusts* – are investment funds that are only open to institutional investors – life insurance corporations, superannuation funds,



## 27.11 FINANCIAL INTERMEDIARIES N.E.C., Financial assets

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
Public unit trusts(a)	205 655	175 666	147 281
Equity unit trusts	175 882	149 530	124 937
Other unit trusts	29 773	26 136	22 344
Common funds	12 086	12 016	7 681
Securitisers	273 977	239 448	194 256
Other(b)	101 203	136 159	208 640
<b>Total</b>	<b>592 921</b>	<b>563 289</b>	<b>557 858</b>

(a) Excludes property and trading trusts.

(b) Includes investment companies, economic development corporations, fund managers, insurance brokers, hedging instrument arrangers, wholesale trusts, cooperative housing societies and state government housing schemes.

Source: Assets and Liabilities of Australian Securitisers (5232.0.55.001); Australian National Accounts: Financial Accounts (5232.0); Managed Funds, Australia (5655.0).

retail trusts, corporate clients, high net worth individuals – due to high entry levels (e.g. \$500,000 or above). They may issue a prospectus, but more commonly issue an information memorandum. Only those which invest in financial assets are included in table 27.11.

Table 27.11 shows the financial assets held by financial intermediaries not elsewhere classified.

## Financial markets

Financial markets are used by participants to either raise funds (e.g. by issuing securities) or invest savings (by buying securities and other

financial assets). The major markets in the Australian financial system include the share market, bond market and money market. Descriptions and tables indicating prices and activity in various financial markets are provided in this section.

A significant influence in financial markets is the participation of institutional investors controlling large pools of investment funds. These pools are accumulated by collective investment institutions and are often managed on a fee-for-service basis by investment managers. A summary of the activities of these institutions is also provided.

## Credit market

Credit may be defined broadly as funds provided to those seeking to borrow. However, analytically useful measures of credit usually exclude borrowings by financial enterprises because their main role is as an intermediary, that is, they borrow in order to lend. Also, lending and borrowing between enterprises which have a special relationship, such as between companies in the same group or between government agencies, are often excluded from credit measures because transactions between these bodies frequently are of a non-market nature. Similarly, some types of financial instrument, such as trade debts, are not considered to be part of an organised market. All of these types of transactions are omitted from table 27.12, which presents a summary of the demand for credit in Australia by the non-financial sectors. It includes raisings by the issue of both debt and equity securities. Table 27.13 shows details of household demand for credit.

## 27.12 DEMAND FOR CREDIT(a)

	NET TRANSACTIONS DURING YEAR		
	2006-07	2007-08	2008-09
	\$m	\$m	\$m
Funds (including equity) raised on conventional credit markets by:			
Private non-financial corporations(b)	160 892	156 278	108 186
National public non-financial corporations	15 858	-734	179
State and local public non-financial corporations	2 948	9 904	23 967
National general government	-1 820	1 963	47 603
State and local general government	332	7 571	5 857
Households	128 433	106 024	71 441
<b>Total</b>	<b>306 643</b>	<b>281 006</b>	<b>257 233</b>

(a) Positive numbers indicate an increase in raisings. Negative numbers indicate repayment or redemption.

(b) Aggregates impacted by large corporate restructuring transactions.

Source: Australian National Accounts: Financial Accounts (5232.0).

## 27.13 HOUSEHOLD DEMAND FOR CREDIT

	NET TRANSACTIONS DURING YEAR		
	2006-07	2007-08	2008-09
	\$m	\$m	\$m
<b>Households demand for credit</b>	<b>128 433</b>	<b>106 024</b>	<b>71 441</b>
Housing	91 504	90 108	84 646
Total Authorised Deposit-taking Institutions (ADIs)	54 905	123 288	122 882
Owner-occupied housing	38 144	89 346	96 851
Investment housing	16 761	33 942	26 031
Other lenders	36 599	-33 180	-38 236
Non-Housing Borrowing	36 929	15 916	-13 205

Source: Australian National Accounts: Financial Accounts (5232.0); Housing Finance (5609.0).

### Stock market

The stock market is a mechanism for trading equities (shares), units in trusts, options, and some fixed-interest securities.

Operated nationally by the Australian Stock Exchange (ASX), which is responsible for the day-to-day running and surveillance of trading, the Australian system is electronic and conducted using the Stock Exchange Automated Trading System, allowing buyers and sellers to be located anywhere in the country.

The ASX classifies listed companies according to their major activity and produces indexes based on these classifications. Table 27.14 summarises the performance of the major indexes.

Table 27.15 shows the market value of Australian shares and units in trusts on issue – both listed and unlisted. It shows the amount on issue by sector of issuer and sector of holder of equities and units.

#### 27.14 AUSTRALIAN STOCK MARKET INDEXES(a)

	2006-07	2007-08	2008-09
All ordinaries			
Index(b)	6 310.6	5 332.9	3 947.8
High(c)	6 435.7	6 873.2	5 351.4
Low(c)	4 878.1	5 130.1	3 090.8
S&P/ASX 200	6 274.9	5 215.3	3 954.9
Banks	14 771.1	10 378.0	9 629.0
Industrials	9 424.4	6 618.0	5 331.0
Resources	5 295.3	6 630.0	4 492.0

(a) Base 31 December 1979 = 500.

(b) Share prices on joint trading floors; June closing value.

(c) Over a 12-month period ending 30 June.

Source: Australian Stock Exchange; Reserve Bank of Australia; Standard and Poor's.

### Money market

Liquidity management by Australian corporations, financial institutions and governments is conducted through an informally arranged market for deposits, loans and placements, and by issuance, purchase and sale of short-term debt securities. Selected rates in the market at 30 June are shown in table 27.16.

Money market securities have an original term to maturity of less than one year, often 30, 90 or 180 days. They are issued by borrowers at a discount to face value and carry no income payment other than the repayment of face value at maturity. To enhance liquidity, money market securities conform to standardised attributes concerning risk and discount rates. Because of the standardisation, the securities of different issuers are often combined in the one parcel of securities for trading purposes. There are two types of securities: bills of exchange and one name paper (promissory notes, treasury notes, commercial paper and bank certificates of deposit), both of which are covered by the *Bills of Exchange Act 1909* (Cwlth). The risk of default of a bill of exchange is reduced by an acceptor or endorser adding their name to the security for a fee. Most bills of exchange traded in the market are bank-accepted bills. Promissory notes are issued by institutions whose credit worthiness is equal to or better than banks; they are not accepted by a bank and unlike bills of exchange they are not endorsed by the parties which sell them in the market. The Australian Government issues treasury notes, state governments and large corporations issue commercial paper and banks issue negotiable certificates of deposit. Table 27.17 shows the amount on issue by sector of issuer and sector of holder of the various types of money market securities.

### 27.15 EQUITY MARKET(a)—30 June

	2007		2008		2009	
	Listed	Unlisted(b)	Listed	Unlisted(b)	Listed	Unlisted(b)
	\$m	\$m	\$m	\$m	\$m	\$m
AMOUNTS ON ISSUE						
<b>Total equities and units in trusts</b>	<b>1 605 996</b>	<b>1 179 475</b>	<b>1 342 754</b>	<b>1 167 203</b>	<b>1 079 717</b>	<b>1 020 058</b>
ISSUED BY						
Private non-financial corporations	1 090 260	268 487	1 001 946	295 434	747 813	274 840
National public non-financial corporations(c)	—	6 918	—	7 503	—	6 277
State and local non-financial corporations(c)	—	77 739	—	66 393	—	39 790
Central bank(c)	—	9 703	—	10 616	—	11 964
Banks	308 631	11 783	221 016	13 678	230 369	10 270
Other depository corporations	1 108	36 645	442	34 985	283	34 201
Life insurance corporations	32 565	4 946	21 433	4 947	18 750	4 975
Other insurance corporations	37 785	38 434	27 316	37 042	28 106	37 276
Central borrowing authorities	—	30	—	30	—	30
Financial intermediaries	135 647	149 710	70 601	127 865	54 396	105 660
Rest of world	—	575 080	—	568 710	—	494 775
HELD BY						
Private non-financial corporations	53 500	260 949	43 093	288 165	28 331	254 842
National public non-financial corporations	—	316	—	318	—	322
State and local public non-financial corporations	—	378	—	376	—	403
Banks	1 272	134 237	725	111 261	1 172	102 857
Other depository corporations	85	4 115	127	4 637	131	4 490
Life insurance corporations	83 149	91 668	73 608	84 726	56 222	73 546
Pension funds	362 000	248 403	301 491	251 597	221 748	211 372
Other insurance corporations	14 414	38 818	11 845	32 426	6 326	32 971
Financial intermediaries	192 372	79 534	140 435	66 768	110 656	53 959
National general government	18 215	19 600	13 320	29 408	11 892	34 415
State and local general government	4 767	89 764	3 564	76 567	2 550	44 615
Households	352 738	85 131	268 429	79 143	188 618	70 847
Rest of world	523 484	126 562	486 117	141 811	452 071	135 419

— nil or rounded to zero (including null cells)

(a) Includes units in trusts.

(b) The unlisted estimated market values are considered to be of poor quality. They should be used with caution.

(c) Net asset values.

Source: Australian National Accounts: Financial Accounts (5232.0).

### 27.16 SHORT-TERM MONEY MARKET RATES(a)—30 June

	2007	2008	2009
	%	%	%
11:00 am call	6.25	7.25	3.00
Bank-accepted bills – 90 days	6.42	7.81	3.25

(a) Per annum.

Source: Reserve Bank of Australia.

### Bond market

Bonds are issued with original terms to maturity of one or more years. Usually the investors are paid a set periodic interest, called a coupon, for the life of the bond and receive their initial investment back at maturity. Some bonds have variable interest rates, some have principal repayments indexed, and there are small amounts of zero-coupon or deep discount securities which are issued at a discount to face value.

## 27.17 SHORT-TERM DEBT SECURITIES

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
<b>ISSUED BY</b>			
Private non-financial corporations	105 250	119 008	121 306
National public non-financial corporations	18	57	42
State and local public non-financial corporations	38	59	64
Banks	412 768	540 123	452 847
Other depository corporations	28 514	25 051	10 907
Life insurance corporations	9	5	5
Other insurance corporations	438	596	719
Central borrowing authorities	7 005	10 834	20 288
Financial intermediaries n.e.c.	39 017	43 717	31 704
National general government	252	339	17 347
State and local general government	855	905	938
Households	22 088	25 479	27 216
Rest of world	3 674	3 968	3 488
<b>Total</b>	<b>619 926</b>	<b>770 141</b>	<b>686 871</b>
<b>HELD BY</b>			
Private non-financial corporations	27 402	26 208	32 932
National public non-financial corporations	349	283	297
State and local public non-financial corporations	—	—	134
Central bank	14 473	39 554	9 787
Banks	253 734	325 164	340 727
Other depository corporations	53 497	62 770	47 705
Life insurance corporations	16 049	14 141	17 037
Pension funds	35 560	39 080	45 229
Other insurance corporations	11 703	11 103	10 629
Central borrowing authorities	26 853	25 933	27 479
Financial intermediaries n.e.c.	32 038	32 858	10 865
National general government	—	40 381	35 148
State and local general government	2 389	1 408	2 947
Households	7 756	7 405	4 746
Rest of world	138 123	143 853	101 209
<b>Total</b>	<b>619 926</b>	<b>770 141</b>	<b>686 871</b>

— nil or rounded to zero (including null cells)

Source: Australian National Accounts: Financial Accounts (5232.0).

## 27.18 BOND MARKET(a), Market yields—30 June

	2007	2008	2009
	%	%	%
Treasury bonds			
3 years	6.45	6.71	4.63
5 years	6.40	6.57	5.23
10 years	6.26	6.45	5.52
New South Wales			
T-corp bonds			
3 years	6.72	7.29	5.19
5 years	6.76	7.19	5.74
10 years	6.66	7.02	6.23

(a) Per annum.

Source: Reserve Bank of Australia.

Governments, trading enterprises and financial institutions issue bonds to finance long-term requirements. For these entities, the bond market generally provides a cheaper source of funds than borrowing from banks and other financial institutions. Table 27.18 shows selected market yields at the end of June for a range of bonds.

Historically, the main issuers of bonds have been the Australian Government and state governments, the latter through their central borrowing authorities. Corporate bonds are issued only by very large private trading and financial enterprises. Following the onset of the

## 27.19 BONDS

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
<b>ISSUED BY</b>			
Private non-financial corporations			
Issued in Australia	56 477	47 736	47 834
Issued offshore	53 207	64 225	97 673
National public non-financial corporations			
Issued in Australia	629	629	799
Issued offshore	—	—	—
State and local public non-financial corporations			
Issued in Australia	—	—	—
Issued offshore	—	—	—
Banks			
Issued in Australia	73 506	103 911	129 849
Issued offshore	204 103	239 177	294 701
Other depository corporations			
Issued in Australia	11 930	9 757	8 732
Issued offshore	14 261	11 217	7 980
Life insurance corporation			
Issued in Australia	—	—	—
Issued offshore	1 488	1 825	1 541
Other Insurance corporation			
Issued in Australia	461	432	282
Issued offshore	3 051	3 089	2 211
Central borrowing authorities			
Issued in Australia	62 716	70 133	116 824
Issued offshore	30 305	32 121	19 597
Financial intermediaries n.e.c.			
Issued in Australia	122 343	167 382	242 401
Issued offshore	92 750	69 061	54 601
National general government			
Issued in Australia	55 356	57 779	88 255
Issued offshore	883	732	637
State and local general government			
Issued in Australia	229	521	614
Issued offshore	—	—	—
Rest of the world			
Issued in Australia	76 084	83 357	79 851
Issued offshore	83 453	84 274	103 525
<b>Total</b>	<b>943 232</b>	<b>1 047 358</b>	<b>1 297 907</b>

— nil or rounded to zero (including null cells)

Source: Australian National Accounts: Financial Accounts (5232.0).

global financial crisis in late 2007, government and bank issuances have increased. Details of the amounts outstanding on bonds issued and held are shown in table 27.19.

### Foreign exchange market

The foreign exchange market is the means whereby currencies of different countries can be bought and sold. In October 1983, the Australian

Government floated the Australian dollar, allowing its value to be determined by market forces with few exchange controls and little Reserve Bank intervention. Prior to 1983, the Australian dollar was pegged to a basket of currencies. The currencies in the basket were weighted according to their trading significance to Australia. Table 27.20 shows the value of the Australian dollar against major currencies.

## 27.19 BONDS *continued*

	AMOUNTS OUTSTANDING		
	AT 30 JUNE		
	2007	2008	2009
	\$m	\$m	\$m
HELD BY			
Private non-financial corporations	17 157	19 523	25 061
National public non-financial corporations	5	15	14
State and local public non-financial corporations	7	60	57
Central bank	42 647	39 643	75 657
Banks	56 695	130 400	220 681
Other depository corporations	24 351	19 154	23 097
Life insurance corporations	47 773	45 562	47 284
Pension funds	82 040	94 872	99 174
Other insurance corporations	36 862	37 012	38 039
Central borrowing authorities	9 526	10 238	14 598
Financial intermediaries n.e.c.	50 687	53 378	59 103
National general government	—	3 798	22 858
State and local general government	8 880	8 406	7 832
Households	6 942	6 085	5 119
Rest of world	559 650	579 212	659 333
<b>Total</b>	<b>943 232</b>	<b>1 047 358</b>	<b>1 297 907</b>

— nil or rounded to zero (including null cells)

Source: Australian National Accounts: Financial Accounts (5232.0).

## 27.20 VALUE OF AUSTRALIAN DOLLAR, Against major currencies

	AT LAST TRADING DAY IN JUNE		
	2007	2008	2009
United States of America dollar	0.8521	0.9694	0.8220
United Kingdom pound	0.4282	0.4882	0.4979
Japanese yen	105.4900	103.2000	79.3500
Euro	0.6376	0.6157	0.5842

Source: Australian Tax Office.

## 27.21 FOREIGN EXCHANGE TURNOVER AGAINST ALL CURRENCIES

	DAILY AVERAGE(a)		
	2006-07	2007-08	2008-09
	\$m	\$m	\$m
Transactions by foreign exchange dealers(b)			
Outright spot(c)	50 222	59 732	61 499
Outright forward(d)	15 113	11 524	9 954
Swaps	120 647	111 417	104 256
Options	3 680	2 923	2 752
<b>Total</b>	<b>189 662</b>	<b>185 597</b>	<b>178 461</b>

(a) Figures given are the average daily turnover for the financial year.

(b) Australian banks and non-bank financial intermediaries authorised to deal in foreign exchange.

(c) An outright spot transaction is one for receipt or delivery within two business days.

(d) An outright forward transaction is one for receipt or delivery in more than two business days.

Source: Reserve Bank of Australia.

Currencies are traded for many reasons: because of exporting or importing requirements, investing or borrowing overseas, arbitraging (i.e. taking advantage of short-term discrepancies in rates) or speculating on possible exchange rate movements with a view to making a profit. Table 27.21 shows the daily average of foreign exchange turnover against all currencies. More recent information may be found in the Reserve Bank of Australia Bulletin Table F.10 (<<http://www.rba.gov.au/Statistics/Bulletin/index.html>>).

## Managed funds

The term 'managed funds' is used loosely in the financial community to embrace two broad types of institutions. The first are managed funds institutions (such as life insurance companies, superannuation funds and unit trusts) which buy assets on their own account. The second are investment or fund managers which act as investment agents for the managed funds institutions, as well as others with substantial funds to invest. Investment managers have relatively small balance sheets because most of the assets they manage are purchased on behalf of clients. The managed funds total assets (graph 27.22) represents assets of managed funds institutions only. The growth in the assets of superannuation funds between 2006 and 2007 coincides with changes to superannuation legislation in June 2007 designed to attract investor funds. The decrease in the assets of managed funds from 2007 to 2009 largely reflects fluctuations in the stock market, particularly as a

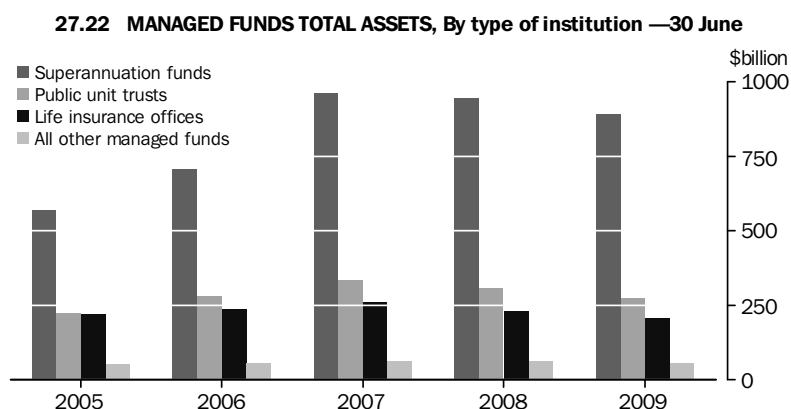
result of the global financial crisis which began in late 2007.

The managed funds industry is difficult to measure because of the large amounts of financial interaction between managed funds institutions and fund managers, and between fund managers themselves. Consequently, double counting of funds which are 'churning' through the system needs to be addressed in order to derive a true measure of the funds management industry. One approach is to take the consolidated assets of collective investment institutions, add to it those funds managed on behalf of other clients such as governments, corporations, charities, overseas clients and 'net-off' funds sourced from other domestic fund managers. Table 27.23 provides this measure of the total funds management industry.

## Managed funds institutions

Managed funds institutions pool the funds of many small to medium investors and use them to buy a particular type, or mix, of assets. The asset profile can be structured to satisfy individual investor requirements regarding, for example, the degree of risk, the mix of capital growth and income, and the degree of asset diversification. Managed funds institutions in ABS statistics comprise the following:

- life insurance offices
- superannuation funds
- public unit trusts
- friendly societies



Source: *Managed Funds, Australia (5655.0)*.

## 27.23 MANAGED FUNDS INDUSTRY, Total funds under management —30 June

	2007	2008	2009
	\$m	\$m	\$m
Total consolidated assets of managed funds institutions	1 359 967	1 307 135	1 206 402
<i>plus</i>			
Total funds under management of investment managers sourced from Australian entities other than managed funds institutions	370 727	349 444	280 207
<i>plus</i>			
Total funds under management of investment managers sourced from overseas	62 537	50 985	42 415
<i>less</i>			
Total funds under management of investment managers sourced from other investment managers	71 532	32 964	12 774
<b>Total</b>	<b>1 721 699</b>	<b>1 674 600</b>	<b>1 516 250</b>

Source: Managed Funds, Australia (5655.0).

## 27.24 ASSETS OF MANAGED FUNDS—30 June 2009

Type of institution	Unconsolidated assets	Cross	
		invested assets	Consolidated assets
	\$m	\$m	\$m
Life insurance offices (a)	205 780	43 068	162 712
Superannuation funds	891 450	151 638	739 812
Public unit trusts	276 381	27 160	249 221
Friendly societies	6 511	2 443	4 068
Common funds	7 691	921	6 770
Cash management trusts	43 819	—	43 819
<b>Total</b>	<b>1 431 632</b>	<b>225 230</b>	<b>1 206 402</b>

— nil or rounded to zero (including null cells)  
(a) Investments by pension funds which are held and administered by life insurance offices are included under life insurance offices.

Source: Managed Funds, Australia (5655.0).

- common funds
- cash management trusts.

Funds of a speculative nature that do not offer sufficiently liquid redemption facilities – for example, agricultural and film trusts – are excluded.

To derive the total assets of each type of managed funds institution in Australia on a consolidated basis, it is necessary to eliminate the cross investment between the various types of institution. For example, investments by superannuation funds in public unit trusts are excluded from the assets of superannuation funds in a consolidated presentation. Table 27.24 shows consolidated assets by type of institution.

## Investment managers

Investment managers are employed on a 'fee-for-service' basis to manage and invest in approved assets, on their clients' behalf. They provide a sophisticated level of service, matching assets and liabilities. They act in the main as the managers of pooled funds, but also manage clients' investments on an individual portfolio basis. Investment managers offer their services to a range of clients, including superannuation funds, life insurance offices, corporations, government entities and high net worth individuals.

A considerable proportion of the assets of managed funds institutions are managed via investment managers. At 30 June 2009, \$691.0b (57% of the consolidated assets of managed funds institutions) were channelled through investment



### 27.25 ASSETS OF MANAGED FUNDS, Invested through investment managers—30 June 2009

Type of fund	Total	Assets
	unconsolidated assets of managed funds	invested with investment managers
	\$m	\$m
Life insurance offices(a)	205 780	128 145
Superannuation funds	891 450	418 783
Public unit trusts	276 381	105 144
Friendly societies	6 511	1 249
Common funds	7 691	3 962
Cash management trusts	43 819	33 704
<b>Total</b>	<b>1 431 632</b>	<b>690 987</b>

(a) Includes both superannuation and ordinary business.  
Source: Managed Funds, Australia (5655.0).

managers. Investment managers also accept money from investors other than managed funds institutions. At 30 June 2009, investment managers invested \$309.8b on behalf of government bodies, general insurers and other clients, including overseas clients.

Table 27.25 shows the total unconsolidated assets of each type of managed fund institution, and the amount of these assets invested through investment managers.

### Lending by financial institutions

The lending activities of financial institutions are grouped for statistical purposes into four major types of lending: housing, personal, commercial and leasing. Information regarding housing finance is presented in the *Housing* chapter.

Table 27.26 shows the size of commitments by

### 27.26 LENDING COMMITMENTS OF FINANCIAL INSTITUTIONS

Type of lending activity	2006–07	2007–08	2008–09
	\$m	\$m	\$m
Housing finance(a)	174 039	174 566	175 022
Personal finance	79 846	82 354	79 634
Commercial finance	455 173	486 600	354 325
Lease finance	6 325	7 012	5 687
<b>Total</b>	<b>715 383</b>	<b>750 534</b>	<b>614 668</b>

(a) Secured finance for owner occupation. Excludes alterations and additions.

Source: Lending Finance, Australia (5671.0).

financial institutions for the four types of lending activity. It should be noted that, although commitments are firm offers of finance made by institutions that have been accepted by borrowers, not all commitments are taken up by borrowers.

### Lease finance

Table 27.27 shows the value of lease finance commitments made by significant lenders (banks, money market corporations, finance companies, general financiers, etc.) to trading and financial enterprises, non-profit organisations, governments, public authorities and individuals.

### Personal finance

Table 27.28 shows the value of commitments made by significant lenders (banks, credit cooperatives, finance companies, etc.) to lend to individuals for their own personal (non-business) use. This includes credit card facilities and personal loans, but excludes secured housing finance.

### Commercial finance

Table 27.29 shows the value of commitments, made by significant lenders (banks, finance companies, money market corporations, etc.) to lend to government, private and public enterprises, non-profit organisations and individuals for investment and business purposes. The decrease in the value of commitments in 2008–09 was primarily driven by the global financial crisis.

### 27.27 LEASE FINANCE COMMITMENTS, By type of lessor

	2006–07	2007–08	2008–09
	\$m	\$m	\$m
Banks	2 224	2 521	2 144
Finance companies	1 034	943	np
General financiers	1 678	1 994	1 658
Other(a)	1 389	1 554	np
<b>Total</b>	<b>6 325</b>	<b>7 012</b>	<b>5 687</b>

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes money market corporations.

Source: Lending Finance, Australia (5671.0).

## 27.28 PERSONAL FINANCE COMMITMENTS, By type of lender(a)

	2006–07	2007–08	2008–09
	\$m	\$m	\$m
Banks	63 298	65 073	65 363
Finance companies	3 298	4 023	np
Credit cooperatives	3 422	3 133	np
Other lenders(b)	9 828	10 125	8 053
<b>Total</b>	<b>79 846</b>	<b>82 354</b>	<b>79 634</b>

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes both fixed loan facilities and new and increased lending commitments under revolving credit facilities.

(b) Includes permanent building societies, general financiers and other registered financial corporations.

Source: Lending Finance, Australia (5671.0).

## 27.29 COMMERCIAL FINANCE COMMITMENTS, By type of lender(a)

	2006–07	2007–08	2008–09
	\$m	\$m	\$m
Banks	389 859	431 661	316 561
Finance companies	4 870	5 004	np
Money market corporations	np	np	np
Other lenders(b)	np	np	np
<b>Total</b>	<b>455 173</b>	<b>486 600</b>	<b>354 325</b>

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes both fixed loan facilities and new and increased lending commitments under revolving credit facilities.

(b) Includes permanent building societies, general financiers, pastoral finance companies and other registered financial corporations.

Source: Lending Finance, Australia (5671.0).

## Money and the payments system

The payments system supports trade and commerce in a market economy. Notes and coin are one means of payment. Liquid balances held at financial institutions are also available potentially for transactions needs, under cheque and other forms of transfer facilities, and thus add to the money supply.

From 1 July 1998, a new financial regulatory framework came into effect, in response to the recommendations of the Financial System Inquiry

(Wallis Committee). Under these arrangements the Reserve Bank has stronger regulatory powers in the payments system in accordance with the *Payments Systems (Regulations) Act 1998* (Cwlth), to be exercised by a Payments System Board within the Bank.

## Money

Australia has a decimal system of currency, the unit being the dollar, which is divided into 100 cents. Australian notes are issued in the denominations of \$5, \$10, \$20, \$50 and \$100 and coins in the denominations of 5c, 10c, 20c, 50c, \$1 and \$2. \$1 and \$2 notes were replaced by coins in 1984 and 1988 respectively, and 1c and 2c coins ceased to be issued from 1 February 1992. Table 27.30 shows the value of notes on issue on the last Wednesday of June. More recent information may be found on the Reserve Bank of Australia website (<<http://www.rba.gov.au/banknotes/resources/statistics.html>>). Table 27.31 shows the value of coin on issue, for more information see the Royal Australian Mint website (<[http://www.ramint.gov.au/about/compliance/annualreports/2008-09/06\\_appendices.cfm#a](http://www.ramint.gov.au/about/compliance/annualreports/2008-09/06_appendices.cfm#a)>).

## Money supply measures

The money supply, as measured and published by the Reserve Bank, refers to the amount of cash held by the public plus deposits with specified financial institutions. The measures range from the narrowest category, money base, through to the widest category, broad money, with other measures in between. The measures mainly used are as follows:

*Money base* – comprises holdings of notes and coin by the private sector, deposits of banks with the Reserve Bank, and other Reserve Bank liabilities to the private sector.

## 27.30 VALUE OF AUSTRALIAN NOTES ON ISSUE —Last Wednesday in June

	2005	2006	2007	2008	2009
	\$m	\$m	\$m	\$m	\$m
\$5	539	572	591	614	644
\$10	837	857	894	917	954
\$20	2 584	2 690	2 846	2 732	2 651
\$50	16 740	18 044	19 228	20 111	23 721
\$100	14 924	15 903	16 730	17 690	20 117
<b>Total</b>	<b>35 624</b>	<b>38 066</b>	<b>40 289</b>	<b>42 064</b>	<b>48 087</b>

Source: Reserve Bank of Australia.

### 27.31 VALUE OF AUSTRALIAN DECIMAL COIN ON ISSUE—30 June

	2005	2006	2007	2008	2009
	\$m	\$m	\$m	\$m	\$m
1c	31	31	31	31	31
2c	48	48	48	48	48
5c	163	174	181	186	192
10c	158	170	180	188	195
20c	247	265	278	292	308
50c	344	368	384	399	414
\$1	622	653	682	723	754
\$2	889	962	1 028	1 113	1 204
<b>Total</b>	<b>2 502</b>	<b>2 671</b>	<b>2 812</b>	<b>2 980</b>	<b>3 146</b>

Source: Royal Australian Mint.

*M3* – is defined as currency plus bank deposits of the private non-bank sector.

*Broad money* – is defined as *M3* plus borrowings from the private sector by non-bank financial intermediaries (including cash management trusts) less their holdings of currency and bank deposits.

The money supply under each of these measures at 30 June is shown in table 27.32.

### Payments system

Following recommendations by the Financial System Inquiry, the Payments System Board was established within the Reserve Bank in July 1998. The Payments System Board has responsibility for

determining the Reserve Bank's payments system policy, under the powers set out under the *Payment Systems (Regulation) Act 1998* (Cwlth) and the *Payment Systems and Netting Act 1998* (Cwlth). The Reserve Bank also has responsibility for oversight of the stability of clearing and settlement facilities under the *Corporations Act 2001* (Cwlth).

The payments system in Australia has changed significantly in recent years. In part, this has been a response to technological change and consumer behaviour. On average, there are at least 15 million non-cash payments made in Australia each day, the overwhelming majority of which are electronic payments.

Table 27.33 shows the number of points of access to the payments system. Branches are access points staffed by employees of financial institutions. Agencies are staffed by other than employees of financial institutions such as postmasters or storekeepers, and exclude school agencies and Bank@Post agencies. Bank@Post (previously called giroPost) provides a limited range of services at Australia Post offices on behalf of participating financial institutions. Electronic points of access include ATM and electronic funds transfer at point of sale (EFTPOS) terminals. More recent information may be found on the Australian Prudential Regulation Authority website (<<http://www.apra.gov.au/Statistics/Points-of-Presence.cfm>>).

### 27.32 MONEY SUPPLY MEASURES—30 June

	2005	2006	2007	2008	2009
	\$m	\$m	\$m	\$m	\$m
Money base	38 678	41 278	43 735	46 466	53 388
M3	678 465	747 315	869 457	1 035 569	1 178 302
Broad money	764 572	841 217	963 995	1 121 140	1 246 438

Source: Reserve Bank of Australia.

### 27.33 POINTS OF ACCESS TO THE AUSTRALIAN PAYMENTS SYSTEM—30 June

	2005	2006	2007	2008	2009
Branches					
Banks	4 960	4 853	5 264	5 398	5 504
Building societies and credit unions	1 235	1 170	1 263	1 240	1 172
Bank@Post (giroPost)	3 190	3 188	3 301	3 305	3 302
ATMs	23 472	24 616	25 681	25 658	27 108
EFTPOS terminals	518 532	540 189	597 063	658 033	669 165

Source: Australian Prudential Regulation Authority; Australian Payments Clearing Association Limited.

## The Global Financial Crisis and its impact on Australia

*This article was contributed by the Reserve Bank of Australia.*

The first signs of distress in financial markets emerged around the middle of 2007 when two funds related to US financial company Bear Stearns announced serious problems with their holdings of mortgage-backed securities (MBS). The problems were particularly acute in the case of securities containing sub-prime mortgages, which are mortgages to individuals with a non-standard credit history or on lower incomes.

The dislocation spread through credit markets over the second half of 2007 as concerns intensified about the value of mortgage-backed securities and other asset-backed securities. Securities which had been thought by investors to be low-risk were downgraded sharply as assets underlying those securities suffered very sharp losses. These concerns caused banks to become considerably less willing to lend to each other and to hoard their cash holdings. As a result, interest rates in money and credit markets rose and parts of credit markets started to malfunction. Equity markets took longer to be affected, with prices continuing to rise until late in the year, even as bank share prices started to decline.

These tremors ebbed and flowed over subsequent months, intensifying in March 2008 when Bear Stearns effectively collapsed and was rescued by JP Morgan. The financial crisis then reached its zenith in September 2008 when US securities company Lehman Brothers went into bankruptcy, and the large insurance company AIG was rescued by the US Government along with the two large mortgage agencies, Fannie Mae and Freddie Mac.

The Lehman bankruptcy saw many parts of global financial markets come to almost a complete halt and fears arose about the stability of the global financial system. Governments and central banks responded to these developments with a large and wide-ranging policy response, including sizeable fiscal stimulus, large reductions in policy interest rates, guarantees of bank deposits and bank debt issuance, and in some cases, sizeable government ownership of troubled financial institutions.

Reflecting the impact of these policy responses, conditions in financial markets improved over the course of 2009 as risk aversion has abated. Share markets have recovered around one half of their declines, credit markets have gradually begun to reopen and function more normally.

The effect of the crisis on Australia has been considerably less than in many other countries. The Australian economy has recorded markedly better growth outcomes than most other developed economies, many of which have experienced severe recessions and rises in unemployment. The Australian financial system has been markedly more resilient. Notably, Australian banks have continued to be profitable and have not required any capital injections from the Government.

That said, the local economy and financial markets have not been immune. Growth in the economy slowed to around half a per cent and the unemployment rate has risen by nearly two percentage points to around 5¾ per cent by November 2009.

The most obvious impact of the financial crisis on most Australian households was the large decline in equity prices, which reduced the wealth of Australian households by nearly 10 per cent by March 2009. However, since the trough in equity markets in March 2009, the local market had recovered half of its decline by the end of November 2009.

The Australian dollar also depreciated rapidly and sizeably as the crisis intensified, declining by over 30 per cent from its July 2008 peak. Around the time of the Lehman bankruptcy, conditions in the foreign exchange market were particularly illiquid, prompting the Reserve Bank of Australia (RBA) to intervene in the market to enhance liquidity. Since March 2009, as fears abated, the Australian dollar largely recovered, reflecting the relative strength of the Australian economy.

The credit and money markets in Australia have also proven to be more resilient than in many other countries, necessitating considerably less intervention by the RBA than occurred in many other countries. In large part this reflected the health of the Australian banking system. The Australian banks had almost no holdings of the

“toxic” securities that severely affected other global banks. The health of the Australian banking system facilitated the effectiveness of the monetary and fiscal response, particularly by allowing much of the large easing in monetary policy to be passed through to interest rates on loans to households and businesses, in stark contrast to the outcome in other developed economies.

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## GOVERNMENT FINANCE

The main functions of government are the provision of non-market services, the regulation of economic and social conditions, and the redistribution of income between sections of the community. These activities are primarily financed by taxation and are carried out by entities in the general government sector. In addition to this core activity, governments can also own or control enterprises that:

- sell goods or services to the public and which operate largely on a commercial, or market basis (public non-financial corporations); or
- engage in financial intermediation (public financial corporations).

This chapter presents a range of information about the financial activities of the different levels of government in Australia, together with some explanatory material to assist with the analysis of these data. The system of Government Finance Statistics (GFS), which is used to derive the statistics presented here, provides statistical information on public sector entities in Australia, classified in a uniform and systematic way.

The GFS system is based on international standards contained in the *System of National Accounts 1993* and the *International Monetary Fund's Government Finance Statistics Manual 2001*. It enables users to analyse the financial operations and financial position of government in various ways – a specific level of government, jurisdiction (state/territory), institutional sector or set of transactions. Information about the GFS system can be found in *Australian System of Government Finance Statistics: Concepts, Sources and Methods, 2005* (5514.0).

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Public sector

The public sector includes all organisations owned or controlled by any of the three levels of government within the Australian political system – Australian (Commonwealth), state (and territory), and local. The responsibilities of each level of government differ (see Chapter 4 – *Government* of this edition of Year Book Australia for further discussion on this matter) and each level has specific sources of revenue with which to fund its activities.

In the Australian system of GFS, a fourth level of government is also identified – multi-jurisdictional. The multi-jurisdictional sector contains units where jurisdiction is shared between two or more governments, or where classification of a unit to a jurisdiction is otherwise unclear. The main type of units currently falling into the multi-jurisdictional category are the public universities.

The public sector can be divided into three institutional sectors which group organisations with similar characteristics:

- *General government* – the main function of general government entities is to provide non-market goods and services (e.g. public roads, public hospitals, libraries) primarily financed by taxes; to regulate and influence economic activity; to maintain law and order; and to redistribute income by means of transfer payments.
- *Public non-financial corporations (PNFCs)* – the main function of PNFCs is to provide goods and services which are predominantly market, non-regulatory and non-financial in nature. Market operators make decisions about what to produce and how much to produce in response to expected levels of demand and expected costs of supply and are exposed to the risks associated with this production.
- *Public financial corporations (PFCs)* – PFCs are enterprises which engage in financial intermediation (i.e. trade in financial assets and liabilities), such as central borrowing authorities, the Reserve Bank of Australia, government banks and insurance offices, or home-lending schemes.

Within GFS the consolidated total of the general government, the PNFCs and the PFCs sectors is referred to as the 'total public sector'.

The GFS framework is divided into a number of separate financial statements, each of which is designed to draw out analytical aggregates, or balances of particular economic significance. Taken together, they provide a comprehensive description of the financial positions of jurisdictions, both individually and collectively. These statements are the operating statement, the cash flow statement and the balance sheet.

The operating statement presents details of transactions in GFS revenues, GFS expenses and the net acquisition of non-financial assets on an accrual basis for an accounting period. Two key GFS analytical balances in the operating statement are GFS net operating balance (NOB) and GFS net lending/borrowing. GFS NOB is the difference between GFS revenues and GFS expenses and reflects the sustainability of government operations. GFS net lending/borrowing is equal to NOB minus the net acquisition of non-financial assets. A positive result reflects a net lending position while a negative result reflects a net borrowing position.

The cash flow statement identifies how cash is generated and applied in a single accounting period. It reflects a cash basis of recording, where the information has been derived indirectly from underlying accrued transactions and movements in balances. In effect, this means that transactions are captured when cash is received or when cash payments are made. Cash transactions are specially identified because they allow the compilation of the cash-based surplus/deficit measure and because the management of cash is considered an integral function of accrual accounting.

The cash based surplus/deficit is a broad indicator of cash flow requirements. When it is positive (i.e. in surplus), it reflects the extent to which cash is available to government to either increase its financial assets or decrease its liabilities. When it is negative (i.e. in deficit), it is a measure of the extent to which government requires cash, by running down its financial assets or by drawing on the cash reserves of the domestic economy, or from overseas.

The balance sheet is the statement of financial position for a sector at a specific point in time. It shows the assets, liabilities and GFS net worth. GFS net worth is an economic measure of wealth. For the general government sector it is calculated as assets less liabilities. For the PNFC and PFC

### 28.1 GENERAL GOVERNMENT OPERATING STATEMENT—2007–08

	<i>Commonwealth</i>	<i>State(a)</i>	<i>Local</i>	<i>Multi-jurisdictional(b)</i>	<i>All levels of government(c)</i>
	\$m	\$m	\$m	\$m	\$m
GFS Revenue	303 291	161 248	27 076	17 031	417 391
GFS Expenses	279 987	157 252	23 983	15 774	387 880
<b>GFS Net Operating Balance</b>	<b>23 304</b>	<b>3 996</b>	<b>3 093</b>	<b>1 257</b>	<b>29 512</b>
Net acquisition of non-financial assets	1 973	8 304	3 752	977	15 007
<b>GFS Net Lending(+)/Borrowing(-)</b>	<b>21 330</b>	<b>-4 308</b>	<b>-659</b>	<b>280</b>	<b>14 505</b>

(a) Includes Northern Territory and Australian Capital Territory.

(b) Contains units where jurisdiction is shared between two or more governments, or classification is unclear. Main units in this category are the public universities.

(c) The sum of individual levels of government may not agree with All levels of government figures due to transfers between levels of government.

Source: Government Finance Statistics, Australia (5512.0).

### 28.2 TOTAL PUBLIC SECTOR OPERATING STATEMENT—2007–08

	<i>Commonwealth</i>	<i>State(a)</i>	<i>Local</i>	<i>Multi-jurisdictional(b)</i>	<i>All levels of government(c)</i>
	\$m	\$m	\$m	\$m	\$m
GFS Revenue	314 626	201 298	27 119	17 687	468 344
GFS Expenses	289 615	195 332	24 017	16 268	434 989
<b>GFS Net Operating Balance</b>	<b>25 011</b>	<b>5 966</b>	<b>3 102</b>	<b>1 418</b>	<b>33 355</b>
Net acquisition of non-financial assets	2 720	22 583	3 777	982	30 062
<b>GFS Net Lending(+)/Borrowing(-)</b>	<b>22 291</b>	<b>-16 617</b>	<b>-676</b>	<b>436</b>	<b>3 292</b>

(a) Includes Northern Territory and Australian Capital Territory.

(b) Contains units where jurisdiction is shared between two or more governments, or classification is unclear. Main units in this category are the public universities.

(c) The sum of individual levels of government may not agree with All levels of government figures due to transfers between levels of government.

Source: Government Finance Statistics, Australia (5512.0).

sectors, GFS net worth is calculated as assets less liabilities less shares and other contributed capital.

Tables 28.1 and 28.2 present the 2007–08 general government and total public sector operating statements. Tables 28.3 and 28.4 present the 2007–08 cash flow statements. Table 28.5 and 28.6 present the balance sheets for June 2008.

### 28.3 GENERAL GOVERNMENT CASH FLOW STATEMENT—2007–08

	Commonwealth	State(a)	Local	Multi-jurisdictional(b)	All levels of government(c)
	\$m	\$m	\$m	\$m	\$m
Cash receipts from operating activities	294 494	164 913	25 700	17 235	411 773
Cash payments for operating activities	-267 735	-152 223	-19 484	-14 977	-365 287
<b>Net cash flows from operating activities</b>	<b>26 759</b>	<b>12 690</b>	<b>6 216</b>	<b>2 258</b>	<b>46 486</b>
Net cash flows from investments in non-financial assets	-3 636	-14 891	-6 932	-1 884	-27 344
Net cash flows from investments in financial assets for policy purposes	5 108	-503	341	70	5 227
Net cash flows from investments in financial assets for liquidity purposes	-29 303	2 902	47	-491	-26 846
Net cash flows from financing activities	1 748	3 453	813	349	7 690
<b>Net Increase(+)/Decrease(-) in Cash Held</b>	<b>675</b>	<b>3 651</b>	<b>485</b>	<b>301</b>	<b>5 213</b>
Net cash flows from operating activities and net cash flow from investments in non-financial assets	23 123	-2 202	-715	373	19 142
Acquisitions of assets under finance leases and similar arrangements	-148	-1 068	3	—	-1 203
<b>Surplus(+)/Deficit(-)</b>	<b>22 974</b>	<b>-3 269</b>	<b>-712</b>	<b>373</b>	<b>17 939</b>

— nil or rounded to zero (including null cells)

(a) Includes Northern Territory and Australian Capital Territory.

(b) Contains units where jurisdiction is shared between two or more governments, or classification is unclear. Main units in this category are the public universities.

(c) The sum of individual levels of government may not agree with All levels of government figures due to transfers between levels of government.

Source: Government Finance Statistics, Australia (5512.0).

### 28.4 TOTAL PUBLIC SECTOR CASH FLOW STATEMENT—2007–08

	Commonwealth	State(a)	Local	Multi-jurisdictional(b)	All levels of government(c)
	\$m	\$m	\$m	\$m	\$m
Cash receipts from operating activities	304 484	208 803	25 738	17 999	465 823
Cash payments for operating activities	-275 458	-187 988	-19 488	-15 534	-408 713
<b>Net cash flows from operating activities</b>	<b>29 025</b>	<b>20 815</b>	<b>6 250</b>	<b>2 465</b>	<b>57 110</b>
Net cash flows from investments in non-financial assets	-4 690	-34 009	-6 986	-1 939	-47 624
Net cash flows from investments in financial assets for policy purposes	2 978	186	375	70	3 816
Net cash flows from investments in financial assets for liquidity purposes	-31 263	1 507	47	-491	-29 138
Net cash flows from financing activities	4 923	15 780	813	216	21 929
<b>Net Increase(+)/Decrease(-) in Cash Held</b>	<b>973</b>	<b>4 278</b>	<b>499</b>	<b>320</b>	<b>6 094</b>
Net cash flows from operating activities and net cash flow from investments in non-financial assets	24 335	-13 188	-735	526	9 492
Acquisitions of assets under finance leases and similar arrangements	-149	-1 420	3	—	-1 556
<b>Surplus(+)/Deficit(-)</b>	<b>24 186</b>	<b>-14 609</b>	<b>-732</b>	<b>526</b>	<b>7 936</b>

— nil or rounded to zero (including null cells)

(a) Includes Northern Territory and Australian Capital Territory.

(b) Contains units where jurisdiction is shared between two or more governments, or classification is unclear. Main units in this category are the public universities.

(c) The sum of individual levels of government may not agree with All levels of government figures due to transfers between levels of government.

Source: Government Finance Statistics, Australia (5512.0).

## 28.5 GENERAL GOVERNMENT BALANCE SHEET—30 June 2008

	Commonwealth	State (a)	Local	Multi- jurisdictional(b)	All levels of government(c)
	\$m	\$m	\$m	\$m	\$m
Assets					
Financial assets	197 280	288 647	16 515	13 658	506 193
Non-financial assets	53 381	406 488	245 060	29 201	734 130
Total	250 661	695 135	261 575	42 859	1 240 323
Liabilities	207 506	156 954	12 462	10 751	377 765
<b>GFS Net Worth</b>	<b>43 155</b>	<b>538 181</b>	<b>249 113</b>	<b>32 108</b>	<b>862 558</b>
Net debt(d)	-46 808	-23 754	-5 909	-5 475	-81 946
<b>Net financial worth(e)</b>	<b>-10 226</b>	<b>131 693</b>	<b>4 053</b>	<b>2 907</b>	<b>128 428</b>

(a) Includes Northern Territory and Australian Capital Territory.

(b) Contains units where jurisdiction is shared between two or more governments, or classification is unclear. Main units in this category are the public universities.

(c) The sum of individual levels of government may not agree with All levels of government figures due to transfers between levels of government.

(d) Equals deposits held, advances received, Reserve Bank of Australia notes on issue and borrowings less cash and deposits, advances paid, investments, loans and placements.

(e) Equals financial assets less total liabilities less shares and other contributed capital. While Net financial worth should add across levels of government, small discrepancies may remain due to the difficulties in accurately identifying the parties and counter-parties associated with financial assets and liabilities.

Source: Government Finance Statistics, Australia (5512.0).

## 28.6 TOTAL PUBLIC SECTOR BALANCE SHEET—30 June 2008

	Commonwealth	State (a)	Local	Multi- jurisdictional(b)	All levels of government(c)
	\$m	\$m	\$m	\$m	\$m
Assets					
Financial assets	288 321	171 339	15 723	13 862	468 142
Non-financial assets	59 356	678 536	245 994	31 393	1 014 954
Total	347 677	849 876	261 717	45 255	1 483 096
Liabilities	304 522	311 694	12 604	11 757	620 538
Shares and other contributed capital	—	—	—	1 390	—
<b>GFS Net Worth</b>	<b>43 155</b>	<b>538 181</b>	<b>249 113</b>	<b>32 108</b>	<b>862 558</b>
Net debt(d)	-62 447	4 302	5 822	-4 555	-68 522
<b>Net financial worth(e)</b>	<b>-16 202</b>	<b>-140 355</b>	<b>3 119</b>	<b>716</b>	<b>-152 397</b>

— nil or rounded to zero (including null cells)

(a) Includes Northern Territory and Australian Capital Territory.

(b) Contains units where jurisdiction is shared between two or more governments, or classification is unclear. Main units in this category are the public universities.

(c) The sum of individual levels of government may not agree with All levels of government figures due to transfers between levels of government.

(d) Equals deposits held, advances received, Reserve Bank of Australia notes on issue and borrowings less cash and deposits, advances paid, investments, loans and placements.

(e) Equals financial assets less total liabilities less shares and other contributed capital. While Net financial worth should add across levels of government, small discrepancies may remain due to the difficulties in accurately identifying the parties and counter-parties associated with financial assets and liabilities.

Source: Government Finance Statistics, Australia (5512.0).

## Taxation revenue

A distinctive feature of the Australian federal system is that the Commonwealth (Australian) Government levies and collects all income tax, from individuals as well as from enterprises. The Commonwealth Government also collects taxes on the provision of goods and services, including: the Goods and Services Tax (GST); taxes on the use of goods and performance of activities; and some taxes on employers' payrolls. The taxation revenue base of state and territory governments consists of taxes on: property; employers' payrolls; and the provision and use of goods and services such as taxes on gambling and insurance. The sole source of taxation revenue for local governments is taxes on property.

Total taxation revenue collected in Australia in 2007–08 was \$348,316 million (m), an increase of

8.9% compared with 2006–07 (table 28.7). Of this, \$208,567m (59.9%) was for taxes on income and \$85,025m (24.4%) for taxes on the provision of goods and services.

Commonwealth Government taxation revenue, including taxes paid by other levels of government and Commonwealth public corporations, rose from \$261,988m in 2006–07 to \$285,672m in 2007–08, an increase of 9.0%. In 2007–08, Commonwealth Government taxation represented 82.0% of taxation revenue for all levels of government.

State government taxation revenue increased by 8.6%, from \$48,903m in 2006–07 to \$53,130m in 2007–08. In 2007–08 taxes on property were the single largest taxation revenue source for state governments (39.4%), followed by taxes on employer payrolls (30.2%). The revenue base of

### 28.7 TAXATION REVENUE, By level of government

	2003–04	2004–05	2005–06	2006–07	2007–08
	\$m	\$m	\$m	\$m	\$m
<b>COMMONWEALTH</b>					
Taxes on income	145 709	162 974	176 198	189 378	208 580
Employers payroll taxes	381	292	369	350	381
Taxes on property	13	14	14	15	15
Taxes on provision of goods and services	62 646	64 997	67 822	71 452	75 863
Taxes on use of goods and performance of activities	811	854	821	793	832
<b>Total taxation revenue</b>	<b>209 560</b>	<b>229 131</b>	<b>245 223</b>	<b>261 988</b>	<b>285 672</b>
<b>STATE (a)</b>					
Taxes on income	—	—	—	—	—
Employers payroll taxes	10 839	12 000	13 095	14 395	16 022
Taxes on property	16 683	16 045	16 911	19 841	20 944
Taxes on provision of goods and services	7 275	7 865	8 166	8 517	9 162
Taxes on use of goods and performance of activities	5 597	5 745	6 062	6 150	7 002
<b>Total taxation revenue</b>	<b>40 394</b>	<b>41 655</b>	<b>44 233</b>	<b>48 903</b>	<b>53 130</b>
<b>LOCAL</b>					
Taxes on income	—	—	—	—	—
Employers payroll taxes	—	—	—	—	—
Taxes on property	7 671	8 183	8 710	9 386	10 116
Taxes on provision of goods and services	—	—	—	—	—
Taxes on use of goods and performance of activities	—	—	—	—	—
<b>Total taxation revenue</b>	<b>7 671</b>	<b>8 183</b>	<b>8 710</b>	<b>9 386</b>	<b>10 116</b>
<b>ALL LEVELS</b>					
Taxes on income	145 707	162 972	176 192	189 369	208 567
Employers payroll taxes	10 862	11 902	13 043	14 284	15 903
Taxes on property	24 358	24 234	25 627	29 232	31 041
Taxes on provision of goods and services	69 922	72 861	75 987	79 969	85 025
Taxes on use of goods and performance of activities	6 404	6 598	6 880	6 908	7 780
<b>Total taxation revenue</b>	<b>257 253</b>	<b>278 568</b>	<b>297 730</b>	<b>319 762</b>	<b>348 316</b>

— nil or rounded to zero (including null cells)

(a) Includes Northern Territory and Australian Capital Territory.

Source: Taxation Revenue, Australia (5506.0).

## 28.8 TAXATION PER PERSON(a), By level of government

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$	\$	\$	\$	\$
Commonwealth Government	10 470	11 311	11 933	12 551	13 451
State and Local Government					
New South Wales	2 604	2 651	2 729	2 977	3 083
Victoria	2 449	2 509	2 591	2 747	2 962
Queensland	2 120	2 169	2 271	2 529	2 763
South Australia	2 272	2 380	2 414	2 590	2 796
Western Australia	2 502	2 594	3 006	3 223	3 470
Tasmania	1 695	1 828	1 869	1 946	2 122
Northern Territory	1 580	1 761	2 091	2 030	2 125
Australian Capital Territory	2 309	2 169	2 352	2 756	3 014
All state and local governments	2 400	2 459	2 575	2 789	2 973
<b>All levels of government</b>	<b>12 852</b>	<b>13 752</b>	<b>14 489</b>	<b>15 319</b>	<b>16 401</b>

(a) Average annual estimated resident population.

Source: Taxation Revenue, Australia (5506.0).

state and territory governments is supplemented by the distribution of grants from the Commonwealth Government, which includes the allocation of GST revenue.

Australian residents paid an average of \$16,401 in tax in 2007-08, an increase of 7.1% compared with 2006-07 (table 28.8). The amount of

Commonwealth Government taxation per person rose by 7.2% from \$12,551 in 2006-07 to \$13,451 in 2007-08. State and territory governments and local councils combined charged residents an average of \$2,973 a year in property taxes, stamp duty, gambling taxes, payroll and other taxes in 2007-08. This was an increase of 6.6% compared with that collected in 2006-07.

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## PRICES

Prices are a key factor in the operation of an economy. Price indexes, which provide summary measures of the movements in various categories of prices, are used extensively to measure inflation, analyse and monitor price behaviour, for contract adjustment and to adjust government payments such as pensions.

This chapter provides an outline and underlying concepts and methodology of Consumer Price Indexes, House Price Indexes, Labour Price Indexes, Producer Price Indexes, and the International Trade Price Indexes.

This chapter contains two articles: *Pensioner and Beneficiary Living Cost Index* and *2005 International Comparison Program*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.



## Concept of a price index

There are many situations where there may be a need to compare two (or more) sets of price observations. For example, a household might want to compare the prices of groceries bought today with the prices of the same groceries bought last year; a manufacturer may want to compare movements in the prices of its outputs with movements in its production costs between two points in time; or an employer might be interested in comparing prices of labour inputs today compared with those of five years ago.

In some situations the price comparisons might only involve a single commodity. Here it is simply a matter of directly comparing the two price observations. For example, a household might want to assess how the price of bread today compares with the price at some previous point in time.

In other circumstances the required comparison may be of prices across a range of commodities. For example, a comparison might be required of clothing prices. There is a wide range of clothing types and prices (e.g. women's coats, girls' pyjamas, boys' shorts, men's suits, etc.) to be considered. While comparisons can readily be made for individual or identical clothing items, this is unlikely to enable a satisfactory result for all clothing in aggregate. A method is required for combining the prices across this diverse range of items allowing for the fact that they have many different units or quantities of measurement. This is where price indexes play an extremely useful role.

A price index is a measure of changes in a set of prices over time. Price indexes allow the comparison of two sets of prices for a common item or group of items. In order to compare the sets of prices over time, it is necessary to designate one set the 'reference' set and the other the 'comparison' set. In the Australian Bureau of Statistics (ABS), the reference set is used as the base period for constructing the index and by convention is given an index value of 100.0. The value of the price index for the comparison set provides a direct measure of price difference between the two sets of prices. For example, if the price of the comparison set had increased by 35% since the base period, then the price index would be 135.0. Similarly, if the price had fallen by 5% since the base year, the index would stand at 95.0.

It is important to note that a price index measures price movements (i.e. percentage changes) and not actual price levels (dollar amounts). For example, if the Consumer Price Index for breakfast cereals in a certain period is 143.4 and the index for bread in the same period is 186.5, it does not mean that bread is more expensive than breakfast cereals. It simply means that the price of bread has increased at about twice the rate of the price of breakfast cereals since the base period.

It should also be noted that price indexes do not measure changes in the quantities of goods or services that underpin the value weights in each price index. These quantities are held constant. The relative value weights of items will change over time in response to changes in relative prices. Presentation of weights in value terms reflects the fact that it is simply not possible to present quantity weights in a meaningful way. In the CPI, for instance, the weight associated with each particular class of items is expressed as a proportion of the total expenditure of all Australian households. Hence the weights in the CPI are often referred to as "expenditure shares". This weight represents a specific "quantity by price" of that particular class of items at the beginning of a series. As the price associated with each particular class of items changes, their relative expenditure shares can change as a proportion of the total.

## Consumer price index (CPI)

The CPI has been designed as a general measure of price inflation faced by households. While several conceptual bases are possible, the ABS has adopted the concept of the CPI as a measure of changes, over time, in the prices of a basket of goods and services acquired by households in the eight capital cities in Australia.

The simplest way of thinking about the CPI is to imagine a basket of goods and services of the kind typically acquired by Australian households. As prices vary, the total cost of this basket will also vary. The CPI is a measure of the changes in the cost of this basket as the prices of items in it change.

From the September quarter 2005 onwards, the total basket is divided into the following 11 major commodity groups: Food; Alcohol and tobacco; Clothing and footwear; Housing; Household

contents and services; Health; Transportation; Communication; Recreation; Education; and Financial and insurance services. These groups are, in turn, divided into 33 subgroups and the subgroups into 90 expenditure classes.

In addition to the aggregate 'All groups' index, indexes are compiled and published for each of the groups, subgroups and expenditure classes for each state and territory capital city. National indexes are constructed as the weighted average of the indexes compiled for each of the eight capital cities.

The 15th series CPI is the latest of a number of retail/consumer price indexes that have been constructed for various purposes by the ABS. (More information about the CPI can be found in *Consumer Price Index: Concepts, Sources and Methods* (6461.0).)

Work has commenced on the latest review of the CPI. The 16th series CPI review will be the first major review undertaken since 1997. It will involve updating item weights, and examining the scope and coverage of the index and other methodological issues. The resulting 16th series CPI will be published in the September quarter 2011 CPI release.

### Price movements by city

Table 29.1 presents All groups CPI numbers for each of the eight capital cities and the weighted average of the eight capital cities, together with percentage changes.

The capital city indexes measure price movements over time in each city individually. They cannot be used to compare price levels between capital cities. For example, the index for Sydney in 2008–09 of 165.8, compared with the corresponding index for Darwin of 163.6, does not mean that prices in Sydney are higher than those in Darwin. It means that, since the reference base period (1989–90), prices in Sydney have increased by a greater percentage than those in Darwin (65.8% compared with 63.6%).

### Price movements by broad commodity group

Table 29.2 presents, the weighted average of the eight capital cities, the index numbers and percentage changes for each of the 11 major commodity groups of the 15th Series CPI and for All Groups.

### Price movements for selected household types

Graph 29.3 and table 29.4 present analytical living cost indexes (ALCIs) specifically designed to measure changes in living costs for four selected household types: Employee households; Age pensioner households; Other government transfer recipient households; and Self-funded retiree households.

These indexes represent the conceptually preferred measures for assessing the impact of changes in prices on the disposable incomes of households. These indexes are particularly suited

**29.1 CONSUMER PRICE INDEX, All groups, Capital cities(a)**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Australia
	INDEX NUMBER (b)								
2004–05	147.7	145.7	148.5	150.4	144.0	147.1	141.8	146.7	147.0
2005–06	152.1	150.2	153.2	155.2	150.1	151.8	146.5	151.9	151.7
2006–07	156.2	154.2	158.3	159.2	156.1	155.7	152.9	156.4	156.1
2007–08	160.9	159.6	164.8	164.4	161.7	160.3	158.3	162.0	161.4
2008–09	165.8	164.1	171.0	169.7	166.6	164.9	163.6	167.5	166.4
	CHANGE FROM PREVIOUS FINANCIAL YEAR (%)								
2004–05	2.5	2.0	2.6	2.3	3.2	3.2	2.2	2.3	2.4
2005–06	3.0	3.1	3.2	3.2	4.2	3.2	3.3	3.5	3.2
2006–07	2.7	2.7	3.3	2.6	4.0	2.6	4.4	3.0	2.9
2007–08	3.0	3.5	4.1	3.3	3.6	3.0	3.5	3.6	3.4
2008–09	3.0	2.8	3.8	3.2	3.0	2.9	3.3	3.4	3.1

(a) All group index numbers. Reference base year is 1989–90 = 100.0.

(b) Arithmetic average of quarterly index numbers for financial year.

Source: Consumer Price Index, Australia (6401.0).

## 29.2 CONSUMER PRICE INDEX GROUPS, Weighted average of eight capital cities(a)

	Food	Alcohol and tobacco	Clothing and footwear	Housing	Household contents and services	Health	Transportation	Communication	Recreation	Education	Financial and insurance services(b)	All groups
INDEX NUMBER												
2004–05	154.8	225.4	110.8	124.8	120.7	204.3	146.8	111.1	130.7	238.7	..	147.0
2005–06	162.3	233.1	109.2	129.3	122.2	213.5	155.5	109.5	132.0	253.2	101.2	151.7
2006–07	172.4	240.6	108.4	133.7	124.6	223.5	158.0	110.8	133.8	264.6	103.0	156.1
2007–08	177.8	249.8	109.3	140.6	123.4	233.5	165.2	111.2	135.7	275.6	109.4	161.4
2008–09	186.5	263.6	110.2	149.0	125.1	245.4	163.7	112.0	137.1	289.1	111.6	166.4
CHANGE FROM PREVIOUS FINANCIAL YEAR (%)												
2004–05	1.6	3.5	-1.7	3.8	-0.3	5.4	3.4	1.0	0.5	6.9	..	2.4
2005–06	4.8	3.4	-1.4	3.6	1.2	4.5	5.9	-1.4	1.0	6.1	..	3.2
2006–07	6.2	3.2	-0.7	3.4	2.0	4.7	1.6	1.2	1.4	4.5	1.8	2.9
2007–08	3.1	3.8	0.8	5.2	-1.0	4.5	4.6	0.4	1.4	4.2	6.2	3.4
2008–09	4.9	5.5	0.8	6.0	1.4	5.1	-0.9	0.7	1.0	4.9	2.0	3.1

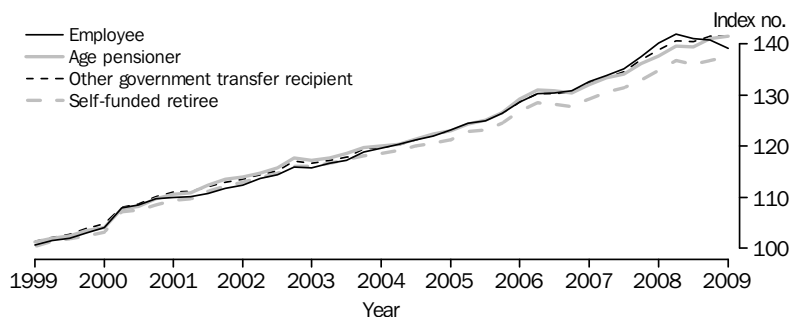
.. not applicable

(a) All group index numbers. Reference base year is 1989–90 = 100.0.

(b) Base: June quarter 2005 = 100.0.

Source: Consumer Price Index, Australia (6401.0).

## 29.3 ANALYTICAL LIVING COST INDEXES FOR SELECTED HOUSEHOLD TYPES(a)—June 1999 to June 2009



(a) Reference base is June quarter 1998 = 100.0.

Source: Analytical Living Cost Indexes for Selected Australian Household Types (6463.0).

for assessing whether or not the disposable incomes of households have kept pace with price changes. The CPI, on the other hand, is designed to measure price inflation as faced by all households and is not the conceptually ideal measure for assessing the impact of price changes on the disposable incomes of households. The most notable differences are that living cost indexes include interest charges but do not include house purchases, while inflation indexes do not include interest charges but do include house purchases.

For more information about these indexes see the article *Price impacts on the living costs of*

*selected household types* in *Year Book Australia 2005*.

Table 29.4 shows that, between 2007–08 and 2008–09 changes in living costs ranged from a low of 3.0% for Employee households to a high of 3.8% for Age pensioner households. The CPI rose by 3.1% over the same period. Over the period from 1998–99 to 2008–09, changes in living costs for all four household types were similar to the change in the CPI. Changes in living costs ranged from 36.8% for Self-funded retiree households to 41.1% for Other government transfer recipient households. The CPI rose by 37.6%.

## 29.4 ANALYTICAL LIVING COST INDEXES FOR SELECTED HOUSEHOLD TYPES(a)

	Employee	Age pensioner	Other government transfer recipient	Self-funded retiree	CPI(b)(c)
	INDEX NUMBER (d)				
2004–05	121.7	121.8	121.6	120.3	121.5
2005–06	126.1	126.3	126.1	124.4	125.3
2006–07	131.0	131.1	130.9	128.4	129.0
2007–08	136.7	135.3	136.0	132.5	133.4
2008–09	140.8	140.4	141.1	136.8	137.6
	CHANGE FROM PREVIOUS FINANCIAL YEAR (%)				
2004–05	3.0	2.4	2.5	2.2	2.4
2005–06	3.6	3.7	3.7	3.4	3.1
2006–07	3.9	3.8	3.8	3.2	3.0
2007–08	4.4	3.2	3.9	3.2	3.4
2008–09	3.0	3.8	3.7	3.2	3.1

(a) Reference base is June quarter 1998 = 100.0.

(b) The CPI has been re-referenced from 1989–90 = 100.0 to June quarter 1998 = 100.0 for ease of comparison with the living cost indexes for household types.

(c) The CPI is designed to measure price inflation for the household sector and not changes in living costs.

(d) Annual average of quarterly index numbers.

Source: Analytical Living Cost Index (6463.0).

The September 2009 quarter saw the first quarterly publication of the ALCIs. Previously they were published annually in the June quarter.

The Pensioner Beneficiary Living Cost Index was published for the first time for the June 2007 quarter. For more information about this index see the article *Pensioner and Beneficiary Living Cost Index* later in this chapter.

### Long-term price series

Although the CPI has only been compiled from 1948, an approximate long-term measure of inflation faced by households has been constructed by linking together earlier selected retail price index series (table 29.5). The index numbers are expressed on the reference base year 1945 = 100.0.

For more information about these former retail price index series see the article *History of retail/consumer price indexes in Australia in Year Book Australia 2005*.

Graph 29.6 shows the annual percentage changes derived from this retail/consumer price index series for the period 1908–2008.

### International comparisons

In analysing price movements in Australia, an important consideration is Australia's performance relative to other countries. In recognition of the many differences in the structure of the housing sector in different countries and in the way housing is treated in their CPIs, the Seventeenth International Conference of Labour Statisticians (2003) adopted a resolution which called for countries, where possible, to compile and provide for dissemination to the international community an index that excludes housing and financial services.

Table 29.7 presents indexes for selected countries on a basis consistent with the resolution and broadly comparable to the Australian series 'All groups excluding Housing and Financial and insurance services'.

**29.5 RETAIL/CONSUMER PRICE INDEX NUMBERS(a)(b)**

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<i>Year</i>	<i>Index no.</i>	<i>Year</i>	<i>Index no.</i>	<i>Year</i>	<i>Index no.</i>	<i>Year</i>	<i>Index no.</i>
1901	47	1931	78	1961	252	1991	1 898
1902	50	1932	74	1962	251	1992	1 917
1903	49	1933	71	1963	252	1993	1 952
1904	46	1934	73	1964	258	1994	1 989
1905	48	1935	74	1965	268	1995	2 082
1906	48	1936	75	1966	276	1996	2 136
1907	48	1937	78	1967	286	1997	2 141
1908	51	1938	80	1968	293	1998	2 159
1909	51	1939	82	1969	302	1999	2 191
1910	52	1940	85	1970	313	2000	2 289
1911	53	1941	89	1971	332	2001	2 389
1912	59	1942	97	1972	352	2002	2 462
1913	59	1943	101	1973	385	2003	2 530
1914	61	1944	100	1974	443	2004	2 588
1915	70	1945	100	1975	510	2005	2 658
1916	71	1946	102	1976	579	2006	2 753
1917	75	1947	106	1977	650	2007	2 817
1918	80	1948	117	1978	702	2008	2 940
1919	91	1949	128	1979	766		
1920	103	1950	140	1980	844		
1921	90	1951	167	1981	926		
1922	87	1952	196	1982	1 028		
1923	89	1953	205	1983	1 132		
1924	88	1954	206	1984	1 177		
1925	88	1955	211	1985	1 257		
1926	90	1956	224	1986	1 370		
1927	89	1957	229	1987	1 487		
1928	89	1958	233	1988	1 594		
1929	91	1959	237	1989	1 714		
1930	87	1960	245	1990	1 839		

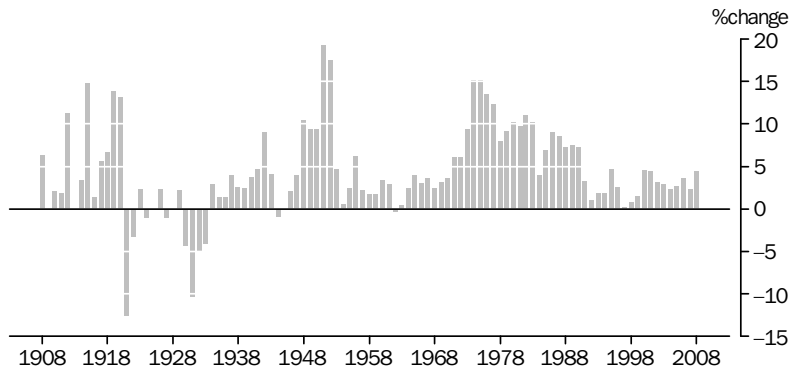
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(a) Reference base year is 1945 = 100.0.

(b) The index numbers from 1901 to 1980 relate to the weighted average of six state capital cities; and from 1981 to the weighted average of eight capital cities. Index numbers are for calendar years.

Source: ABS data available on request, Consumer Price Index.

## 29.6 RETAIL/CONSUMER PRICE INDEX, ANNUAL CHANGES



Source: ABS data available on request, Consumer Price Index.

## 29.7 CONSUMER PRICE INDEX, INTERNATIONAL COMPARISONS(a)(b)

	2004-05	2005-06	2006-07	2007-08	2008-09
	INDEX NUMBER				
<b>Australia</b>	<b>150.3</b>	<b>155.2</b>	<b>159.8</b>	<b>163.8</b>	<b>167.8</b>
Canada	139.3	142.2	143.8	145.8	147.6
Germany	131.1	133.1	135.0	138.7	140.1
Hong Kong (SAR China)	161.2	162.6	164.7	171.2	173.1
Indonesia	560.2	646.6	700.5	763.5	831.7
Japan	106.2	106.1	106.4	107.3	107.8
Korea, Republic of (South)	204.9	210.4	215.4	223.2	233.0
New Zealand	132.9	136.8	139.6	143.2	147.7
Singapore	125.6	126.9	127.8	134.2	137.0
Taiwan	134.7	138.2	138.4	144.4	146.6
United Kingdom	149.7	152.8	157.6	162.4	168.6
United States of America	146.2	152.6	155.6	161.8	163.7
	CHANGE FROM PREVIOUS FINANCIAL YEAR (%)				
<b>Australia</b>	<b>2.0</b>	<b>3.3</b>	<b>3.0</b>	<b>2.5</b>	<b>2.4</b>
Canada	1.8	2.1	1.1	1.4	1.2
Germany	1.7	1.5	1.4	2.7	1.0
Hong Kong (SAR China)	1.7	0.9	1.3	3.9	1.1
Indonesia	6.8	15.4	8.3	9.0	8.9
Japan	0.1	-0.1	0.3	0.8	0.5
Korea, Republic of (South)	3.8	2.7	2.4	3.6	4.4
New Zealand	1.8	2.9	2.0	2.6	3.1
Singapore	1.1	1.0	0.7	5.0	2.1
Taiwan	2.7	2.6	0.1	4.3	1.5
United Kingdom	1.2	2.1	3.1	3.0	3.8
United States of America	3.1	4.4	2.0	4.0	1.2

(a) Reference base year is 1989-90 = 100.0.

Source: Consumer Price Index, Australia (6401.0).

(b) All groups excluding Housing and Financial and insurance services.

## Pensioner and Beneficiary Living Cost Index

The government's Pension Review Report completed by Dr Jeff Harmer in February 2009 followed a comprehensive review of Australia's pension system. In response to the review, the government funded the ABS to produce a new price index that reflects the changes in the living costs of pensioners and other households receiving income support from the government more explicitly than does the Consumer Price Index (CPI).

In the 2009 Federal Budget, the government indicated that it will use the new index, known as the Pensioner and Beneficiary Living Cost Index (PBLCI), to index base pension rates where it is higher than the CPI. The PBLCI was first published on 24 August 2009 with quarterly data dating back to June quarter 2007. This index is published by the ABS on a quarterly basis.

### Description of the PBLCI

The PBLCI is a measure of the effect of changes in prices on the living expenses of a subgroup of the Australian population: age pensioner households and other government transfer recipient households. The PBLCI is based on the Analytical Living Cost Indexes (ALCIs), which have been compiled and published by the ABS since June 2000. These living cost indexes are produced as a by-product of the CPI. They are the conceptually preferred measures for assessing the effect of changes in prices on the out-of-pocket living expenses of subgroups of the Australian population.

Conceptually, the biggest difference between the PBLCI and the CPI is that the PBLCI includes interest charges but does not include house purchases, while the CPI includes new house purchases but does not include interest charges. Additionally, insurance services are treated differently, where the PBLCI uses gross premiums, while net premiums are used in the CPI.

Initially, the PBLCI has been derived by combining the existing ALCIs for age pensioner households and other government transfer recipient households. The PBLCI is calculated by summing the expenditure aggregates for these two population subgroups at the expenditure class level.

### PBLCI Publication

The first publication of the PBLCI included a time series of movements, points change and index numbers dating back to the June quarter 2007. Positive quarterly movements have been recorded every quarter with the exception of December 2008 (-0.1%). In the same quarter the CPI recorded a negative movement of -0.3%. Positive through the year movements have been recorded each quarter, however the magnitude of these rises has been steadily falling since the September 2008 quarter (table 29.8).

The PBLCI publication also compares the percentage movements of the PBLCI with the movements of the CPI. Graph 29.9 shows that initially the quarterly movements were quite similar for the PBLCI and CPI, however the movements have differed more so over the past 12 months.

The recent divergence in the quarterly movements of the PBLCI from the movements of the CPI is demonstrated in Graph 29.10. The PBLCI and the re-referenced CPI track each other quite closely up until the September quarter 2008, after which the PBLCI has remained above the CPI.

### Plans to improve the PBLCI

The ABS is working to improve the PBLCI. The sample size for the 2009-10 Household Expenditure Survey (HES) has been expanded to include more households in the reference population i.e. age pensioner households and other government transfer recipient households. The sample increase primarily addresses the need to have significantly improved expenditure weights for the PBLCI. Increasing the number of households in the reference population in the HES sample should enable the ABS to provide accurate estimates of expenditure for each of the capital cities. The new HES data will be used to improve the weights for the PBLCI reference population from the September quarter 2011 onwards.

The ABS plans to capture detailed information during processing from the expanded HES sample, analyse it to determine whether any additional price collections are needed to make

## 29.8 PENSIONER AND BENEFICIARY LIVING COST INDEX, ALL GROUPS, WEIGHTED AVERAGE OF EIGHT CAPITAL CITIES(a)

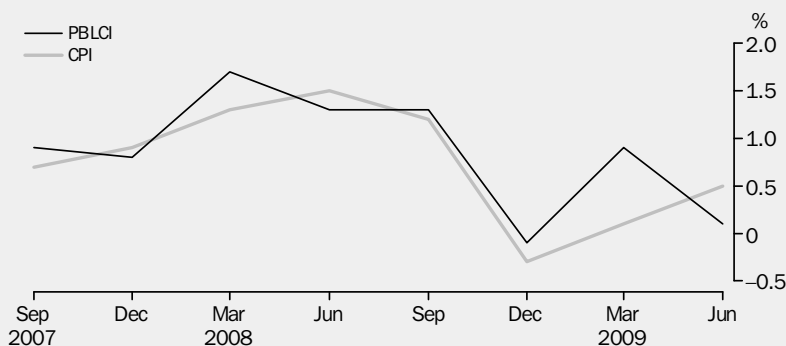
Quarters	Index Numbers	PERCENTAGE CHANGE		CHANGE IN POINTS CONTRIBUTION	
		From previous quarter	From corresponding quarter of previous year	From previous quarter	From corresponding quarter of previous year
September	100.9	0.9	..	0.9	..
December	101.7	0.8	..	0.8	..
March	103.4	1.6	..	1.7	..
June	104.7	1.3	4.7	1.3	4.7
September	106.1	1.3	5.2	1.4	5.2
December	106.0	-0.1	4.2	-0.1	4.3
March	107.0	0.9	3.5	1.0	3.6
June	107.1	0.1	2.3	0.1	2.4

.. not applicable

Source: Pensioner and Beneficiary Living Cost Index (6467.0).

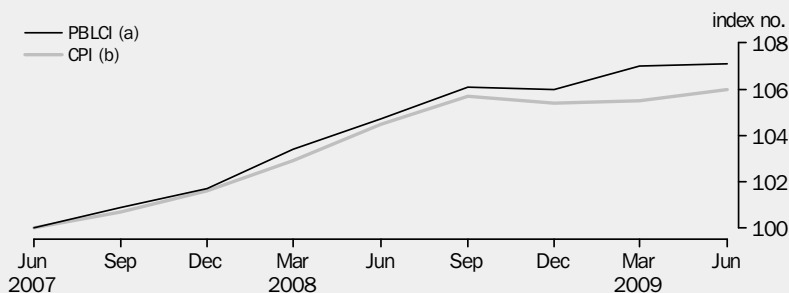
(a) Reference base of index: June quarter 2007 = 100.0

### 29.9 PENSIONER AND BENEFICIARY LIVING COST INDEX AND CPI, All groups, Change from previous quarter (%)



Source: Pensioner and Beneficiary Living Cost Index (6467.0).

### 29.10 PENSIONER AND BENEFICIARY LIVING COST INDEX AND CPI (RE-REFERENCED) index numbers



(a) Reference base of index: June quarter 2007 = 100.0.

(b) Re-referenced to base of June quarter 2007 = 100.0.

Source: Pensioner and Beneficiary Living Cost Index (6467.0).



the PBLCI more robust and, if so, undertake those collections. For example, a detailed analysis may show that the types of items purchased by the PBLCI reference population move at a different rate than those purchased by the CPI

population in general. If the differences are significant, then a more detailed approach to those items in the price collection may be warranted.

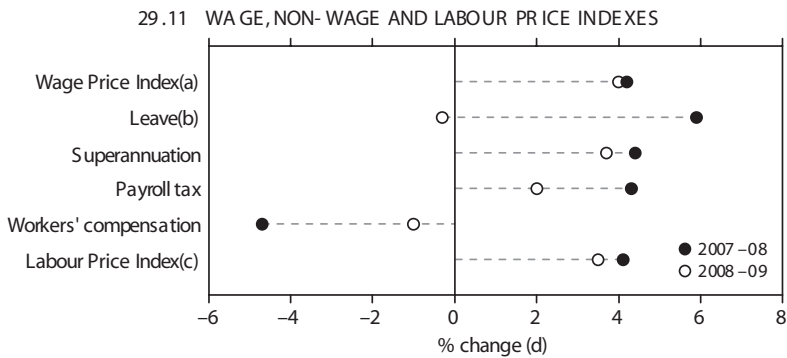
## Labour price index (LPI)

The LPI measures changes in the price of labour services resulting from market forces. The LPI is unaffected by changes in the quality or quantity of work performed, that is, it is unaffected by changes in the composition of the labour force, hours worked, or changes in characteristics of employees (e.g. work performance). The LPI is produced annually on a financial year basis and consists of two components: a wage price index (WPI), published quarterly; and non-wage price index, which is available for each financial year.

WPIs are compiled using information collected from a representative sample of employee jobs within a sample of employing organisations. The ABS constructs four WPIs on a quarterly basis:

ordinary time hourly rates of pay excluding bonuses; ordinary time hourly rates of pay including bonuses; total hourly rates of pay excluding bonuses; and total hourly rates of pay including bonuses. Four non-wage indexes are constructed on a financial year basis: annual and public holiday leave; superannuation; payroll tax; and workers' compensation. From these wage and non-wage components, two LPIs are constructed, also on a financial year basis, one including bonuses and one excluding bonuses. Only those indexes which exclude bonuses are pure price indexes because bonuses tend to reflect changes in the quantity and quality of work performed.

Graph 29.11 shows percentage changes from the previous financial year for 2008–09 for several LPI



(a) Total hourly rates of pay excluding bonuses. (b) Annual leave and public holiday leave. (c) Excluding bonuses. (d) Percentage change from the previous financial year.

Source: Labour Price Index, Australia (6345.0).

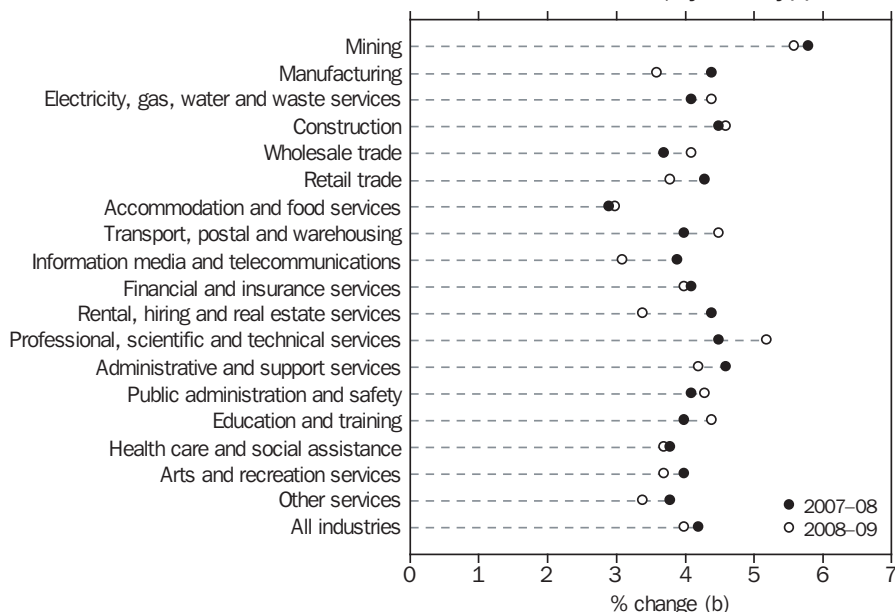
## 29.12 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, ALL SECTORS

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australian Capital Territory	Australia
INDEX NUMBER (a)									
2004–05	85.9	86.1	84.4	85.2	82.2	85.0	85.0	85.3	85.2
2005–06	89.4	89.4	88.1	88.4	85.8	88.5	88.7	88.8	88.7
2006–07	92.8	92.6	92.1	91.9	89.9	92.4	92.1	92.4	92.3
2007–08	96.4	96.2	96.0	96.2	95.1	95.9	95.7	96.3	96.2
2008–09	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
CHANGE FROM CORRESPONDING QUARTER OF PREVIOUS YEAR (%)									
2004–05	3.6	3.9	3.8	3.4	4.3	4.2	3.7	4.4	3.8
2005–06	4.1	3.8	4.4	3.8	4.4	4.1	4.4	4.1	4.1
2006–07	3.8	3.6	4.5	4.0	4.8	4.4	3.8	4.1	4.1
2007–08	3.9	3.9	4.2	4.7	5.8	3.8	3.9	4.2	4.2
2008–09	3.7	4.0	4.2	4.0	5.2	4.3	4.5	3.8	4.0

(a) Reference base of each index: 2008–09 = 100.0.

Source: Labour Price Index, Australia (6345.0).

**29.13 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By industry(a)**



(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition. (b) Percentage change from the previous financial year.

Source: *Labour Price Index, Australia (6345.0)*.

series. The WPI (total hourly rates of pay excluding bonuses) shows a similar rate of change from the previous financial year as it did in 2007–08. All non–wage price indexes, with the exception of Workers' compensation, showed lower rates of change in 2008–09 than in the change from the previous financial year recorded in 2007–08. The Annual Leave and Public Holiday Index showed nearly no movement in 2008–09 compared with the previous financial year due to a reduction in Public Holiday entitlements across a number of states (ANZAC Day was on a weekend in 2009).

As shown in table 29.12, increases from the previous financial year for total hourly rates of pay excluding bonuses varied across states and territories. All index numbers have been calculated on a reference base of 2008–09, that is, the numbers in each index series have been set to equal 100.0 for the financial year 2008–09. For Australia, the change from the financial year 2007–08 to 2008–09 was 4.0%. For the states and territories, the highest financial year growth was recorded by Western Australia (5.2%) and the lowest by New South Wales (3.7%).

Financial year increases in the total hourly rates of pay excluding bonuses, by industry, are shown in graph 29.13, with industry defined in terms of the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 edition. Data in previous issues were based on the 1993 version of ANZSIC. Indexes for previous periods have been reproduced on an ANZSIC 2006 basis by reclassifying the businesses that reported data in earlier periods to the appropriate industry division of ANZSIC 2006. Index movements for Australia, state/territory, sector and All industries series were not affected by the introduction of the new industry classification. Changes from financial year 2007–08 to 2008–09 ranged from 3.0% for the Accommodation and food services industries, to 5.6% for the Mining industry.

### House price indexes (HPI)

Tables 29.14 and 29.15 provide estimates of changes in house prices for each of the eight capital cities of Australia. The information is presented in the form of price indexes

constructed separately for established houses and project homes. They are calculated on the reference base year 2003–04 = 100.0 for each of the eight capital cities as well as a weighted average of eight capital cities. The capital city indexes measure price movements over time in each city individually. They do not measure differences in price levels between cities.

The project home price index measures the movements in the cost of constructing a dwelling on a client's land. The established house price index covers transactions in detached residential dwellings on their own block of land regardless of age (i.e. including new houses sold as a house/land package as well as second-hand

#### 29.14 ESTABLISHED HOUSE PRICE INDEX(a)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
INDEX NUMBER									
2003–04	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2004–05	96.1	101.9	104.2	106.5	114.4	111.8	115.9	99.9	101.2
2005–06	93.3	106.4	108.2	111.2	145.7	119.7	138.8	103.5	105.1
2006–07	95.5	117.2	119.2	119.7	192.8	131.1	160.7	113.5	115.5
2007–08	101.9	139.9	141.8	143.4	194.8	142.2	175.2	127.1	129.0
2008–09(b)	98.0	138.8	139.7	147.1	184.3	141.3	190.1	123.2	126.0
CHANGE FROM PREVIOUS FINANCIAL YEAR (%)									
2003–04	12.0	11.2	32.5	20.3	18.5	44.9	14.0	20.9	15.5
2004–05	-3.9	1.9	4.2	6.5	14.4	11.8	15.9	-0.1	1.2
2005–06	-2.9	4.4	3.8	4.4	27.4	7.1	19.8	3.6	3.9
2006–07	2.4	10.2	10.2	7.6	32.3	9.5	15.8	9.7	9.9
2007–08	6.7	19.4	19.0	19.8	1.0	8.5	9.0	12.0	11.7
2008–09(b)	-3.8	-0.8	-1.5	2.6	-5.4	-0.6	8.5	-3.1	-2.3

(a) Reference base year is 2003–04 = 100.0

Source: House Price Indexes: Eight Capital Cities (6416.0).

(b) Subject to revision.

#### 29.15 PROJECT HOME PRICES INDEX(a)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
INDEX NUMBER									
2003–04	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2004–05	105.3	103.3	105.5	103.6	111.9	111.6	109.5	102.0	106.1
2005–06	107.7	105.9	107.4	106.2	130.3	116.8	119.8	105.4	110.3
2006–07	108.1	105.9	111.9	108.4	144.1	120.3	135.6	108.4	113.3
2007–08	112.3	111.2	121.2	113.8	148.7	126.7	144.7	112.4	118.8
2008–09	117.1	112.8	128.4	120.4	153.4	129.9	152.8	118.6	123.2
CHANGE FROM PREVIOUS FINANCIAL YEAR (%)									
2003–04	4.1	4.0	13.1	6.4	9.4	8.5	5.5	9.2	7.4
2004–05	5.3	3.3	5.5	3.6	11.9	11.6	9.5	2.0	6.1
2005–06	2.3	2.5	1.8	2.5	16.4	4.7	9.4	3.3	4.0
2006–07	0.4	—	4.2	2.1	10.6	3.0	13.2	2.8	2.7
2007–08	3.9	5.0	8.3	5.0	3.2	5.3	6.7	3.7	4.9
2008–09	4.3	1.4	5.9	5.8	3.2	2.5	5.6	5.5	3.7

— nil or rounded to zero (including null cells)

Source: House Prices Indexes: Eight Capital Cities (6416.0).

(a) Reference base year is 2003–04 = 100.0.

houses). Price changes, therefore, relate to changes in the total price of dwelling and land.

## Producer price indexes (PPI)

Producer price indexes measure changes in the prices either received or paid by producers of commodities and providers of services. In Australia they generally relate to prices for goods and services as they affect businesses, for example, the price of goods used as inputs to manufacturing and the price of services provided by the services industries. This contrasts with the CPI which measures changes in the retail prices paid by consumers, as explained earlier in this chapter. For more information about producer price indexes, see *Producer and International Trade Price Indexes: Concepts, Sources and Methods, 2006* (6429.0).

## Stage of production indexes

The stage of production (SOP) producer price indexes are compiled using the stage of production concept, in which flows of commodities are categorised according to their economic destination on a sequential basis along the production chain. The basis for the categorisation of commodities is the 1996–97 Australian Input–Output (I–O) tables (see the *National accounts* chapter). The principal categorisation is between final commodities (i.e. commodities destined for final consumption, capital formation or export) and those commodities that will be processed further (referred to as 'non-final' commodities).

The initial breakdown of commodity flows into final and non-final represents a useful economic dissection of producers' transactions. However, the non-final commodities can flow into the production of either final commodities or other non-final commodities. Therefore, to aid analysis, the non-final commodity flows have been divided on a sequential basis between stage 1 (or preliminary) commodities and stage 2 (or intermediate) commodities. This approach results in three separate stages of production.

In order to avoid multiple counting of transactions, the three stages are not aggregated.

Under this framework, preliminary (stage 1) commodities are used in the production of intermediate (stage 2) commodities which, in

turn, flow into the production of final (stage 3) commodities.

The framework allows for analyses of price change as commodities flow through production processes. Price changes for earlier stages of production may be indicators of possible future price changes for later stages.

The same commodity can be assigned to any of the stages of production depending on its destination. For example, bauxite is a preliminary good when it is used to produce alumina that is in turn used in the production of aluminium by an Australian producer. Where the alumina is exported the bauxite used in its production will be considered an intermediate good. Where the bauxite is exported it is deemed to be a final (stage 3) good.

## Market transactions approach

The ABS has adopted a market transactions approach in disaggregating commodity supply into the various production stages. Under this approach, the individual transactions in a given commodity are assigned to the relevant stage, based on identification of the market(s) in which that commodity is transacted, which in turn is determined by the usage pattern of that commodity. A particular commodity, within the index classification system, can be assigned to more than one stage of production, on the basis of its usage pattern as identified in the I–O tables.

## Index coverage

The SOP indexes are compiled on a Australian and New Zealand Standard Industrial Classification (ANZSIC) 1993 basis. In concept, the scope of the SOP indexes is economy-wide, relating to the output of all the goods and services industries. However, there are limits on the availability of price indexes for service industries, and coverage is currently restricted to the output of the accommodation, transport (freight) and storage, and property and business services sectors. Similarly, coverage of the construction sector is confined to indexes for the output of the following industries: house construction, other residential building construction, non-residential building construction, and road and bridge construction. Coverage of the stage of production indexes will be progressively extended as additional service and construction industry collections are

**29.16 STAGE OF PRODUCTION PRICE INDEXES (a), By stage and source**

	PRELIMINARY			INTERMEDIATE			FINAL (EXCL. EXPORTS)		
	Domestic	Imports	Total	Domestic	Imports	Total	Domestic	Imports	Total
2004–05	121.1	115.4	120.2	119.8	104.4	117.5	124.1	84.6	116.1
2005–06	129.5	129.5	129.4	126.7	112.6	124.7	129.5	84.5	120.4
2006–07	137.0	132.4	136.2	133.9	114.5	131.0	134.8	82.5	124.2
2007–08	144.5	141.9	144.0	141.3	117.4	137.8	141.6	78.8	128.7
2008–09	153.8	154.6	153.7	147.9	130.9	145.4	146.3	88.9	134.5

(a) Reference base year is 1998–99 = 100.0

Source: Producer Price Indexes, Australia (6427.0).

established. Table 29.16 shows stage of production producer price indexes.

### Manufacturing industries indexes

The manufacturing output producer price indexes relate to selected products (i.e. articles produced) primary to the manufacturing industry, while the manufacturing input producer price indexes relate to materials used by establishments classified to the manufacturing industry. These indexes are compiled on the basis of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC), 2006 edition.

#### Gross sector basis

Prior to the September quarter 2009, the manufacturing indexes were constructed on a net sector basis with intra-sector transactions netted out. The scope of the output indexes was therefore restricted to transactions in produced articles primary to the defined sector of the Australian manufacturing industry that were sold or transferred to domestic establishments outside that sector, or used as capital equipment, or exported. The scope of the input indexes related to transactions in materials used in defined sectors of the Australian manufacturing industry that were produced by domestic establishments outside that sector, or imported.

From the September quarter 2009, the manufacturing indexes are constructed on a gross sector basis. The scope of the output indexes includes transactions in produced articles primary to the defined sector of Australian manufacturing industries that are sold or transferred to domestic establishments within or outside that sector for further processing, or used as capital equipment, or exported. Articles are defined as all products primary to the manufacturing industry excluding commission production products and general government consumption of fixed capital. The

scope of the input indexes relates to transactions in materials used by establishments classified to the manufacturing industry. Materials are defined as products primary to ANZSIC 2006 Divisions A – D (i.e. agriculture, forestry, fishing, mining, manufacturing and electricity, gas, water and waste services) that are consumed by establishments classified to the manufacturing industry.

#### Price indexes of articles produced by manufacturing industries

The manufacturing division output index, from the September quarter 2009 onwards, measures changes in prices of articles that are primary to ANZSIC 2006 Division C – Manufacturing, that are sold or transferred to domestic establishments within or outside the manufacturing division for further processing, intermediate use or used as capital equipment or exported.

The price of produced articles primary to the manufacturing industry, as measured by the manufacturing division output index, increased by 20.6% between 2004–05 and 2008–09 (table 29.17).

The output indexes for articles primary to manufacturing subdivisions measure transactions within and outside the subdivision or group. Prior to September quarter 2009 these series were constructed on a net sector basis. They excluded intermediate transactions in produced articles primary to the specific manufacturing subdivision or group that were sold or transferred within that subdivision or group for further processing.

In 2008–09, the largest increase in the price of produced articles primary to the manufacturing division was in fabricated metal product manufacturing at 14.1%, while prices of petroleum and coal products fell by 10.0% (table 29.18).

## 29.17 MANUFACTURING DIVISION OUTPUT INDEXES(a)(b)

	<i>Manufacturing division</i>
2004–05	139.3
2005–06	149.4
2006–07	156.4
2007–08	164.2
2008–09	168.0

- (a) Reference base year is 1989–90 = 100.0  
 (b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.  
 Source: Producer Price Indexes, Australia (6427.0).

### Price indexes of materials used in manufacturing industries

The manufacturing division input index (table 29.19), from the September quarter 2009 onwards, measures changes in prices of materials used in ANZSIC 2006 Division C – Manufacturing, that have been purchased or transferred in from domestic establishments within or outside the manufacturing division, or imported. Prior to the September quarter 2009 this index was constructed on a net sector basis.

The price of materials used in manufacturing, as measured by the manufacturing division input

index, increased by 37.0% between 2004–05 and 2008–09, driven mainly by increases in the price of domestic materials. In 2008–09, the price of domestic materials was 39.1% higher than the price in 2004–05, while the price of imported materials had risen by 27.6% (table 29.19).

The input indexes for materials used in manufacturing measure input purchases or transfers within and outside the subdivision. Prior to September quarter 2009 they were constructed on a net sector basis. They excluded intermediate transactions in materials used in a specific manufacturing subdivision or group that were sold or transferred within that subdivision or group for further processing.

From 2007–08 to 2008–09 the price of materials used in manufacturing, as measured by the manufacturing division input index, increased by 6%. Increases occurred for the materials used in the majority of constituent manufacturing industries. The largest increase in price was for the materials used in basic chemical and chemical product manufacturing (23.5%), primary metal product manufacturing (17.9%) and non-metallic mineral product manufacturing (11.8%) industries (table 29.20).

## 29.18 PRICE INDEXES OF ARTICLES PRODUCED BY MANUFACTURING INDUSTRY(a)

	2004–05	2007–08	2008–09	Change from	Change from
				2004–05 to	2007–08 to
	index no.	index no.	index no.	%	%
<i>ANZSIC Subdivision (b)</i>					
Food product manufacturing(c)	102.4	115.2	126.0	23.0	9.4
Beverage and tobacco product manufacturing(c)	108.7	120.9	128.4	18.1	6.2
Textile, leather, clothing and footwear manufacturing(c)	102.7	108.1	109.8	6.9	1.6
Wood product manufacturing	140.5	157.4	167.7	19.4	6.5
Pulp, paper and converted paper product manufacturing	117.4	121.2	123.3	5.0	1.7
Printing (including the reproduction of recorded media)(c)	92.5	90.2	93.6	1.2	3.8
Petroleum and coal product manufacturing	226.8	370.3	333.3	47.0	-10.0
Basic chemical and chemical product manufacturing	120.8	131.6	148.5	22.9	12.8
Polymer product and rubber product manufacturing	130.8	146.6	149.9	14.6	2.3
Non-metallic mineral product manufacturing	131.2	140.6	149.0	13.6	6.0
Primary metal and metal product manufacturing	129.4	176.8	169.9	31.3	-3.9
Fabricated metal product manufacturing	133.6	149.8	170.9	27.9	14.1
Transport equipment manufacturing	126.1	128.0	129.5	2.7	1.2
Machinery and equipment manufacturing	115.9	125.9	130.4	12.5	3.6
Furniture and other manufacturing	131.6	143.9	156.9	19.2	9.0

- (a) Reference base year is 1989–90=100.0 unless otherwise specified.  
 (b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.  
 (c) Reference base year is 2001–02 = 100.0.  
 Source: Producer Price Indexes, Australia (6427.0).

## 29.19 MANUFACTURING DIVISION INPUT INDEX(a)(b)

	MATERIALS USED		
	Domestic	Imported	Total
2004–05	149.7	120.8	137.1
2005–06	172.3	127.2	154.5
2006–07	183.2	132.0	162.2
2007–08	205.4	133.3	177.1
2008–09	208.3	154.1	187.8

- (a) Reference base year is 1989–90 = 100.0  
 (b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition  
 Source: Producer Price Indexes, Australia (6427.0).

## Construction industries indexes

### Price index of the outputs primary to the building construction subdivision and selected construction industry classes

The construction producer price indexes relate to outputs primary to ANZSIC 2006 Division E – Construction. The construction outputs price indexes measure changes in prices of the outputs primary to selected construction industry classes. Presented in table 29.21 is the ANZSIC 2006 Subdivision (30) – Building construction which consists of three classes: House construction (3011); Other residential building construction (3019); and Non-residential building construction (3020). Outputs primary to the class Road and bridge construction (3101) are also presented in this table.

## 29.20 PRICE INDEX OF MATERIALS USED IN MANUFACTURING INDUSTRIES(a)

ANZSIC Subdivision	2004–05	2007–08	2008–09	Change from	Change from
				2004–05	2007–08
	index no.	index no.	index no.	to	to
Food product manufacturing(b)	103.2	123.6	124.7	20.8	0.9
Beverage and tobacco product manufacturing(b)	95.8	95.0	101.8	6.3	7.2
Textile, leather, clothing and footwear manufacturing(b)	94.3	98.7	98.1	4.0	–0.6
Wood product manufacturing	126.6	146.1	160.7	26.9	10.0
Pulp, paper and converted paper product manufacturing	103.1	113.3	123.8	20.1	9.3
Printing (including the reproduction of recorded media)(b)	94.2	96.5	100.2	6.4	3.8
Petroleum and coal product manufacturing	216.9	352.7	342.0	57.7	–3.0
Basic chemical and chemical product manufacturing	121.3	148.2	183.0	50.9	23.5
Polymer product and rubber product manufacturing	134.4	148.9	166.0	23.5	11.5
Non-metallic mineral product manufacturing	135.9	147.7	165.2	21.6	11.8
Primary metal and metal product manufacturing	116.0	185.4	218.5	88.4	17.9
Fabricated metal product manufacturing	127.4	151.9	162.8	27.8	7.2
Transport equipment manufacturing	126.2	136.0	151.3	19.9	11.3
Machinery and equipment manufacturing	117.1	137.7	149.7	27.8	8.7
Furniture and other manufacturing	132.5	150.5	166.5	25.7	10.6

- (a) Reference base year is 1989–90 = 100.0 unless otherwise specified.

- (b) Reference base year is 2001–02 = 100.0  
 Source: Producer Price Indexes, Australia (6427.0).

## 29.21 PRICE INDEX OF THE OUTPUT OF THE GENERAL CONSTRUCTION INDUSTRY(a)

ANZSIC Subdivision and Class(b)	2004–05	2005–06	2006–07	2007–08	2008–09
Building construction	130.6	136.8	142.5	150.4	155.0
House construction	130.6	136.1	139.7	146.8	152.3
Other residential building construction	132.1	138.7	144.8	152.3	155.7
Non-residential building construction	131.3	138.2	146.2	155.4	159.0
Road and bridge construction	125.8	133.2	139.9	147.5	157.0

- (a) Reference base year is 1998–99 = 100.0  
 (b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition.  
 Source: Producer Price Indexes, Australia (6427.0).



## 29.22 PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING(a)(b)

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six capital cities
2004–05	146.6	134.6	137.3	143.4	131.1	148.0	138.8
2005–06	149.5	137.0	140.8	145.8	136.0	151.0	142.0
2006–07	153.3	141.7	145.3	149.9	144.0	156.2	147.0
2007–08	157.1	146.1	151.4	153.9	150.7	163.7	152.1
2008–09	166.0	154.7	160.6	168.8	163.0	175.0	162.0

- (a) Reference base year is 1998–99 = 100.0  
 (b) The separate city indexes measure price movement within each city individually. They do not compare price levels between cities.

Source: Producer Price Indexes, Australia (6427.0).

### Price index of materials used in house building

The construction input indexes measure changes in prices of Materials used in house building (table 29.22). This table relates to the statistical division for each state capital city and the weighted average of the six capital cities. The ANZSIC class House construction (3011) approximates the industry scope of the index.

### Service industries price indexes

The currently available service industry indexes represent the results to date of a program to progressively extend the scope of the producer price indexes into the service sectors of the economy. These indexes are important sources of data for the SOP indexes. The service industry indexes measure changes in prices of services primarily defined to selected ANZSIC 2006 industries, excluding general government consumption of fixed capital.

New index series created as part of the implementation of ANZSIC 2006 in the September quarter 2009 have been backcast to September quarter 2001. These index numbers are calculated on the reference base 2001–02 = 100.0. Continuing index number series are calculated on the reference base 1998–99 = 100.0. Table 19.23 presents index numbers for selected output of services primary to the following ANZSIC 2006 divisions; Division I – Transport, postal and warehousing; Division J – Information media and telecommunications; Division L – Rental, hiring and real estate services; Division M – Professional, scientific and technical services; Division N – Administrative and support services; Division O – Public administration and safety and Division S – Other services.

### International trade price indexes

The international trade price indexes measure the change in prices of goods either as they cross the customs frontier entering Australia (i.e. imports) or leave Australia bound for another country (i.e. exports).

As the prices used in these indexes are expressed in Australian currency, changes in the relative value of the Australian dollar against overseas currencies (in particular, the major trading currencies) can have a direct and significant impact on the price movements of the many commodities that are bought or sold with prices expressed in overseas currencies. Forward exchange rate cover is excluded from the prices used in the indexes.

The prices collected and used in compiling the indexes relate to specified standards, grades, types, etc., of each commodity with the aim of incorporating in the index the price changes of representative goods of constant quality. Wherever possible, prices to or from specific major markets are used for each of the goods priced, in order to lessen the impact of price variations attributable solely to changes in market origins or destinations. In most cases, prices are combined using fixed weights between markets. Weights between markets are reviewed periodically and revised where necessary. For more information on the international trade price indexes, see *Producer and International Trade Price Indexes: Concepts, Sources and Methods, 2006* (6429.0).

### 29.23 PRICE INDEX OF SELECTED OUTPUT OF SERVICE INDUSTRIES(a)

ANZSIC (b)	2004-05	2005-06	2006-07	2007-08	2008-09
Division I(c)					
Road freight transport	115.8	123.0	126.9	131.8	141.1
Rail freight transport	96.7	98.0	100.1	102.0	111.0
Water freight transport	114.3	111.2	110.6	108.5	120.0
Pipeline transport	107.8	107.5	107.7	112.0	126.3
Postal and courier pick-up and delivery services(d)	105.9	108.3	110.4	111.6	116.3
Water transport support services	100.3	100.9	107.9	108.9	112.2
Airport operations and other air transport support services	97.0	100.8	99.8	102.7	103.2
Customs agency services	107.1	109.4	110.4	111.4	114.3
Warehousing and storage services	107.6	113.6	118.2	122.8	129.5
Division J(e)					
Newspaper, periodical, book and directory publishing(d)	109.1	111.7	115.1	117.7	120.9
Data processing, web hosting and electronic information storage services(d)	102.3	106.9	106.4	105.8	106.1
Division L(f)					
Rental and hiring services (except real estate)	106.9	109.2	112.7	115.6	115.8
Non-residential property operators	115.6	122.3	131.8	146.2	152.0
Real estate services	175.7	186.8	213.0	245.0	253.2
Division M(g)					
Scientific research services	117.4	124.1	129.5	131.6	137.8
Architectural, engineering and technical services(d)	114.3	122.1	130.8	142.5	152.0
Legal and accounting services	129.0	136.9	143.2	148.5	155.0
Market research and statistical services(d)	111.7	117.4	123.5	127.3	132.7
Management advice and related consulting services(d)	103.7	105.2	110.7	112.3	114.5
Computer system design and related services(d)	104.9	108.1	112.2	114.6	118.9
Division N(h)					
Employment services(d)	117.0	122.4	128.4	133.2	136.3
Other administrative services(d)	108.4	110.8	116.6	120.9	125.3
Building cleaning, pest control and gardening services(d)	109.4	111.0	115.3	118.6	123.2
Division O(i)					
Investigation and security services	114.8	116.4	121.8	125.8	129.0
Division S(j)					
Parking services	147.1	153.9	170.1	190.0	206.4

- (a) Reference base year is 1998-99 = 100.0 unless otherwise specified  
 (b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 edition  
 (c) Transport, postal and warehousing  
 (d) Reference base year is 2001-02 = 100.0

- (e) Information media and telecommunications  
 (f) Rental, hiring and real estate services  
 (g) Professional, scientific and technical services  
 (h) Administrative and support services  
 (i) Public administration and safety  
 (j) Other services

Source: Producer Price Indexes, Australia (6427.0).

## Import price index

The import price index measures changes in the prices of imports of merchandise landed in Australia, based on their 'free-on-board' (f.o.b.) prices in the country of origin. The index numbers for each quarter relate to prices of imports landed in Australia during the period.

The main uses of the import price index are as deflators for the production of chain volume estimates of imports, as a guide to future inflationary trends for macro-economic purposes and the indexation of business contracts.

Table 29.24 provides import price index numbers for major commodity groups based on the UN Standard International Trade Classification, Revision 4 (SITC Rev. 4), and the All groups index numbers, for the period 2004–05 to 2008–09.

## Export price index

The export price index measures changes in the prices of all exports of merchandise from Australia, including re-exports (goods which are imported into Australia then exported without alteration). The index numbers for each quarter relate to the prices of exports actually shipped during that quarter.

In general, prices are obtained from the major exporters of the selected commodities included in the index. The prices used in the index are the prices at which the goods physically leave Australia, that is, the prices are f.o.b. at the main Australian ports of export.

Table 29.25 provides export price index numbers for major commodity groups based on the SITC Rev. 4, and the All groups index numbers, for the period 2004–05 to 2008–09.

### 29.24 IMPORT PRICE INDEX(a)

Commodity group (SITC section)(b)	2004-05	2005-06	2006-07	2007-08	2008-09
Food and live animals (0)	120.0	125.9	123.8	126.2	147.1
Beverages and tobacco (1)	128.2	132.5	122.3	122.8	131.6
Crude materials, inedible, except fuels (2)	115.1	121.4	125.6	138.8	174.1
Mineral fuels, lubricants and related materials (3)	202.3	288.0	280.2	353.7	332.7
Animal and vegetable oils, fats and waxes (4)	142.2	160.9	167.0	197.8	245.0
Chemicals and related products, n.e.c. (5)	116.8	117.9	118.8	120.7	142.4
Manufactured goods classified chiefly by material (6)	123.2	126.7	135.1	130.0	151.8
Machinery and transport equipment (7)	98.3	95.4	92.4	85.2	95.4
Miscellaneous manufactured articles (8)	111.8	112.3	109.3	101.1	122.5
Commodities and transactions, n.e.c. (9)	113.3	142.3	163.7	185.1	241.0
All groups	112.8	117.0	115.7	115.0	129.7

- (a) Reference base of each index: 1989–90 = 100.0.  
 (b) Classified according to the UN Standard International Trade Classification, Revision 4 (SITC Rev. 4).

Source: International Trade Price Indexes, Australia (6457.0).

### 29.25 EXPORT PRICE INDEX(a)

Commodity group (SITC section)(b)	2004-05	2005-06	2006-07	2007-08	2008-09
Food and live animals (0)	106.8	112.0	117.3	132.5	162.6
Beverages and tobacco (1)	126.4	124.8	119.0	105.0	101.9
Crude materials, inedible, except fuels (2)	103.1	121.3	147.3	148.0	178.6
Mineral fuels, lubricants and related materials (3)	184.9	254.0	229.5	250.1	492.3
Animal and vegetable oils, fats and waxes (4)	103.3	111.3	136.8	200.1	156.0
Chemicals and related products n.e.c. (5)	108.3	118.8	125.5	115.2	128.0
Manufactured goods classified chiefly by material (6)	121.1	139.8	187.0	170.1	142.2
Machinery and transport equipment (7)	88.4	89.8	88.7	85.1	96.8
Miscellaneous manufactured articles (8)	89.2	94.4	94.7	87.3	96.9
Commodities and transactions not classified in the sitc (9)	117.1	144.8	163.8	181.7	238.0
All Groups	116.4	136.0	146.8	149.6	196.5

- (a) Reference base of each index: 1989–90 = 100.0.  
 (b) Classified according to the UN Standard International Trade Classification, Revision 4 (SITC Rev. 4).

Source: International Trade Price Indexes, Australia (6457.0).

## 2005 International Comparison Program

### Introduction to purchasing power parities

The International Comparison Program (ICP) is a worldwide statistical initiative to collect comparative price data and estimate the purchasing power parities (PPPs) of the world's economies. PPPs are currency conversion rates that both convert to a common currency and equalise the purchasing power of different currencies. In other words, they eliminate the differences in price levels between countries in the process of conversion.

The standard method of converting the output or expenditures, measured in the local currency of one economy, to a common unit of account for comparison or aggregation with that of other economies has been to use market exchange rates. However, market exchange rates are determined by the demand for, and supply of, currencies used in international transactions. They do not necessarily reflect differences in price levels and may therefore understate or overstate the real value of an economy's output and the standard of living of its residents. Using PPPs instead of market exchange rates to convert currencies makes it possible to compare the output of economies and the economic welfare of their inhabitants in real terms (that is, controlling for differences in price levels).

### 2005 PPP Program

The 2005 International Comparison Program brought together two separate PPP programs. The first was the global ICP program conducted by the ICP global office within the World Bank, which provided overall coordination for the collection of data and calculation of PPPs in more than 100 (mostly developing) economies. The second was conducted by the Statistical Office of the European Communities (Eurostat) and the Organisation for Economic Co-operation and Development (OECD), which comprised 46 (mostly OECD member) economies. The ICP global office has combined the results with those from the OECD–Eurostat PPP program into an overall global comparison, so that results for all participating economies could be compared directly.

The ABS played a significant and leading role in both 2005 PPP programs. Former Australian Statistician Dennis Trewin chaired the 2005 ICP Executive Board, which was the overall policy making body for the ICP. Other ABS staff were members of the ICP Executive Board and Technical Advisory Group. The ABS also provided technical support to the Asia ICP region, which played a significant role in the success of the ICP and set an example for partnering that was recognized by the UN Statistical Commission. Of particular note was the participation of China in the ICP for the first time, and India for the first time since 1985. The Asia ICP provided essential information about the emergence of the Asian economy and updated the important measures of poverty.

The OECD–Eurostat PPP program involved the ABS collecting prices in the Australian community for the items included in the PPP basket. This included around 3000 consumer goods and services, 30 occupations in government, education and health services, around 180 types of equipment goods and 15 construction projects.

### Results

Table 29.26 provides a summary of the results from the 2005 ICP for the OECD/Eurostat countries. Adjusted using PPP, Australia had a higher GDP per capita (US\$32,798) compared to the OECD–Eurostat average (US\$26,404). Luxemburg had the highest GDP per capita (US\$70,014), while Albania had the lowest (US\$5,369). In comparison, Australia had a higher GDP per capita than New Zealand (US\$24,554) and the United Kingdom (US\$31,580). Australia had a lower GDP per capita compared to the United States (US\$41,674) and Canada (US\$35,078).

When comparing the two GDP per capita figures for Australia, when adjusted using the U.S. exchange rate, Australia's GDP per capita (US\$34,774) was overstated compared to when it was adjusted using PPP (US\$32,798). This was a result of the higher price level in Australia (106) when compared to the U.S. (100).

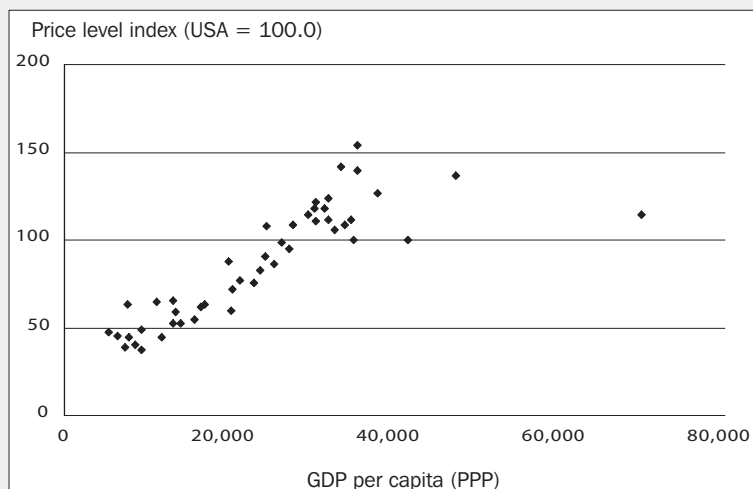
Australia's price level of 106 means its purchasing power in \$US was slightly less than the U.S. (100).

## 29.26 2005 ICP RESULTS: COMPARISON OF OECD-EUROSTAT COUNTRIES

	PRICE LEVEL PER CAPITA		PRICE LEVEL
	PPP	\$US	US=100
<b>Australia</b>	<b>32 798</b>	<b>34 774</b>	<b>106</b>
Albania	5 369	2 587	48
Austria	34 108	37 056	109
Belgium	32 077	35 852	112
Bosnia and Herzegovina	6 506	3 007	46
Bulgaria	9 353	3 525	38
Canada	35 078	35 133	100
Croatia	13 232	8 749	66
Cyprus	24 473	22 359	91
Czech Republic	20 281	12 190	60
Denmark	33 626	47 793	142
Estonia	16 654	10 341	62
Finland	30 469	37 262	122
France	29 644	34 008	115
Germany	30 496	33 849	111
Greece	25 520	22 285	87
Hungary	17 014	10 962	64
Iceland	35 630	54 975	154
Ireland	38 058	48 405	127
Israel	23 845	19 749	83
Italy	27 750	30 195	109
Japan	30 290	35 604	118
Korea, Republic of (South)	21 342	16 441	77
Latvia	13 218	7 035	53
Lithuania	14 085	7 530	53
Luxembourg	70 014	80 315	115
Former Yugoslav Republic of Macedonia	7 393	2 858	39
Malta	20 410	14 605	72
Mexico	11 317	7 401	65
Montenegro	7 833	3 564	45
Netherlands	34 724	38 789	112
New Zealand	24 554	26 538	108
Norway	47 551	65 267	137
Poland	13 573	7 965	59
Portugal	20 006	17 599	88
Romania	9 374	4 575	49
Russian Federartion	11 861	5 341	45
Serbia	8 609	3 564	41
Slovakia	15 881	8 798	55
Slovenia	23 004	17 558	76
Spain	27 270	26 031	95
Sweden	31 995	39 621	124
Switzerland	35 520	49 675	140
Turkey	7 786	5 013	64
United Kindom	31 580	37 266	118
United States of America	41 674	41 674	100
<b>OECD-Eurostat average</b>	<b>26 404</b>	<b>26 191</b>	<b>99</b>

Source: The International Comparison Program, The World Bank.

### 29.27 COMPARISON OF GDP PER CAPITA (GDP) AND PRICE LEVEL



Source: *The International Comparison Program, The World Bank.*

### 29.28 2005 ICP RESULTS: COMPARISON OF ASIA-PACIFIC COUNTRIES

	GDP PER CAPITA		PRICE LEVEL
	PPP	\$US	USA=100
<b>Australia</b>	<b>32 798</b>	<b>34 774</b>	<b>106</b>
Bangladesh	1 268	446	35
Bhutan	3 694	1 318	36
Brunei	47 465	25 754	54
Cambodia	1 453	454	31
China (excludes	4 091	1 721	42
Hong Kong (SAR	35 680	26 094	73
Macao (SAR of	37 256	24 507	66
Taiwan	26 069	15 674	60
Fiji	4 209	3 558	85
India	2 126	707	33
Indonesia	3 234	1 311	41
Iran,	10 692	3 190	30
Laos	1 811	508	28
Malaysia	11 466	5 250	46
Maldives	4 017	2 552	64
Mongolia	2 643	915	35
Nepal	1 081	343	32
Pakistan	2 396	769	32
Philippines	2 932	1 158	39
Singapore	41 479	26 879	65
Sri Lanka	3 481	1 218	35
Thailand	6 869	2 721	40
Vietnam	2 142	637	30
<b>Asia-Pacific</b>	<b>3 592</b>	<b>1 462</b>	<b>41</b>
<b>World average</b>	<b>8 971</b>	<b>7 230</b>	<b>81</b>

Source: *The International Comparison Program, The World Bank.*

Compared to other countries, Australia had a lower price level than the United Kingdom (118) and New Zealand (108), and a higher price level than Canada (100).

For those countries with a price level less than 100, this resulted in their GDP per capita (adjusted using \$US) being understated compared to their GDP per capita when adjusted using PPP. The opposite was true for countries with a price level greater than 100.

Using the results from table 29.26, graph 29.27 shows the relationship between the price level and GDP per capita. There was a clear, positive relationship, whereby those countries with a low level of GDP per capita generally had a lower price level, while countries with a higher level of GDP per capita generally had a higher price level.

Table 29.28 compares the per capita GDP figures and the price level for countries from the Asia–Pacific region with Australia. Australia had one of the highest per capita GDPs in the region,

which was around nine times the Asia–Pacific average. When compared to the World average, it was more than 3 times higher. Australia's GDP per capita (US\$32,798) remains below countries such as Brunei (US\$47,465), Singapore (US\$41,479) and Hong Kong (US\$35,680).

Emerging countries such as China (US\$4,091) and India (US\$2,126) still had a significant difference between their GDP per capita levels compared to Australia.

Australia's price level index of 106 was also higher than the Asia–Pacific average (41) and the World average (81). Compared to countries in the Asia–Pacific region, Australia was the only country to have a price level index greater than 100. The next highest was Fiji, with a price level index of 85.

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## NATIONAL ACCOUNTS

National accounts are designed to provide a systematic summary of national economic activity and have been developed to assist in the practical application of economic theory.

The Australian system of national accounts includes national income, expenditure, and product accounts, financial accounts, the national balance sheet, input-output tables and satellite accounts. At their summary level, the national accounts reflect key economic flows – production, the distribution of incomes across sectors, consumption, saving and investment. At their more detailed level, they are designed to present a statistical picture of the structure of the economy and the detailed processes that make up domestic production and its distribution.

The financial accounts show the financial assets and liabilities of the nation and of each institutional sector and inter-sectoral financial transactions. The balance sheet is a comprehensive statement of produced and non-produced assets, liabilities to the rest of the world and net worth. Satellite accounts allow the development of an integrated set of statistics about a particular sector which crosses a number of industries or sectors. Input-Output tables show the structure of a country's production system for a particular period. They show which goods and services are produced by each industry and how they are used.

The national accounts also include many detailed classifications (e.g. by industry, by purpose, by commodity, by state and territory, and by asset type) relating to major economic aggregates.

The information presented in this chapter is on the same conceptual basis as the information presented in the *International Accounts and Trade* chapter of this edition of Year Book Australia. However, estimates in the two chapters differ as they are based on information compiled at different points in time.

This chapter contains the article *Fifty Years of Quarterly National Accounts*.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Defining and measuring GDP

Australia's national accounts are compiled in accordance with international statistical standards contained in the *System of National Accounts 1993*. Australia's application of these standards is described in *Australian System of National Accounts: Concepts, Sources and Methods* (5216.0).

The main output from the national accounts is a measure of the overall value of economic production in Australia in a given period, but without any double counting of the goods and services being produced. Many goods and services are bought by businesses for use in their own productive activities (e.g. steel is bought by car manufacturers). If the value of all goods and services produced were simply added together there would be serious duplication because some goods and services would be added in several times at various stages of production. The overall measure of production, excluding double counting, is called 'gross domestic product', which is commonly referred to as GDP. It is defined in the Australian System of National Accounts as:

The total market value of goods and services produced in Australia after deducting the cost of goods and services used up (intermediate consumption) in the process of production, but before deducting allowances for the consumption of fixed capital (depreciation).

The performance of the Australian economy is represented in the national accounts by such measures as growth in GDP. While movements in the volume measure of GDP (from which the direct effects of price changes have been removed) are an important indicator of economic growth, there is no single measure which can describe all aspects of the well-being of Australians. *Measures of Australia's Progress: Summary Indicators 2009* (1383.0.55.001) looks beyond GDP and provides a set of indicators relating to aspects of Australian life across the economy, the environment and society. Within these broad areas, dimensions of progress encompass national income, wealth and productivity, the quality of the environment, the wellbeing of the population in terms of health, education, work, housing and economic resources, and the way people live together in society.

The national accounts provide important information for a range of purposes. The system of national accounts also provides a framework or structure which can be, and has been, adapted and extended to facilitate the examination of many economic, environmental and social policy issues.

There are three ways of measuring GDP.

*Income approach* – Measures income generated by the economy: compensation of employees (wages and salaries, and employers' social contributions); gross operating surplus (profits); gross mixed income (income from unincorporated businesses); and taxes less subsidies.

*Expenditure approach* – Measures final expenditures on goods and services (i.e. those goods and services which are not processed any further), adding on the contributions of changes in inventories and the value of exports, and deducting the value of imports.

*Production approach* – Calculates the sum of the value of goods and services produced by each industry (its output at basic prices, which implicitly includes taxes less subsidies on production) and deducts the cost of goods and services used up by the industry in the productive process (intermediate consumption), which leaves the value added by the industry. In the production approach, taxes less subsidies on products are separately identified and are not included in the output of industries at basic prices. (For more information on the distinction between taxes and subsidies on products and taxes and subsidies on production see *Australian System of National Accounts: Concepts, Sources and Methods* (5216.0).)

While each approach should, conceptually, deliver the same estimate of GDP, if the three measures are compiled independently using different data sources then different estimates of GDP result. However, the Australian national income, expenditure and product estimates have been integrated within annual balanced supply and use tables which are available for 1994–95 to 2005–06. Integration with balanced supply and use tables ensures that the GDP estimates obtained from the three approaches are balanced, and thus annual estimates using the income, expenditure and production approaches

### 30.1 GDP AND GDP PER PERSON



Source: Australian System of National Accounts (5204.0).

### 30.2 GDP VOLUMES, International comparison—1997–2007

	Average annual growth rate
	%
<b>Australia</b>	<b>3.5</b>
'G7' countries	
Canada	3.3
France	2.4
Germany	1.6
Italy	1.5
Japan	1.2
United Kingdom	2.9
United States of America	3.0
Total 'G7'	2.3
New Zealand	3.3

Source: Organisation for Economic Co-operation and Development, Annual National Accounts, OECD.StatExtracts.

are identical for the years for which supply and use tables are available.

Prior to 1994–95, and for the latest financial year, the estimates using each approach are based on independent sources, and there are differences between the income, expenditure and production estimates. Nevertheless, for these periods, a single estimate of GDP has been compiled.

The volume measure (see *Volume or 'real' GDP*) of GDP increased by 3.7% in 2007–08, following an increase of 3.3% in 2006–07. For some analytical purposes, it is important to allow for the impact of population growth on movements

in GDP. Annual growth in GDP per person has been about one to two percentage points lower than that for GDP since the mid-1970s and was negative in 1974–75, 1977–78, 1982–83, 1990–91 and 1991–92 (graph 30.1). In 2007–08, GDP per person increased by 2.1%.

Compared with many developed economies, Australia has experienced relatively strong growth over the past ten years. With an average annual growth rate of 3.5% for GDP volumes from 1997 to 2007, it is higher than all of the 'G7' countries (table 30.2).

#### Volume or 'real' GDP

The reason for having volume estimates in the national accounts is to provide time series of expenditure and production aggregates which are free of the direct effects of price change. All the current price aggregates of expenditure and production appearing in the national accounts are estimates of the sums of the values of individual transactions. Each of these transactions has two components – a price and a quantity. From one period to another the quantities and prices comprising the transactions change. This means that when the current price value of an aggregate, such as GDP, in one period is compared with the current price value in another period, the difference between them usually reflects both changes in quantity and changes in price of the constituent transactions. In order to estimate by how much the 'volume' of GDP has changed between the two periods we need to measure the value of GDP in each period using the same unit prices.

For many years the Australian Bureau of Statistics (ABS) derived constant price estimates as a means of measuring changes in the volumes of aggregates. Constant price estimates are derived by fixing the unit prices of goods and services to those of some base year. These base year unit prices are effectively the weights used to combine the quantities of the different goods and services purchased or produced. The unit prices of different goods and services tend to grow at different rates – some at dramatically different rates. For example, the prices of computer equipment are estimated to have declined by about 92% between 1989–90 and 2007–08, while the prices of most other goods and services have increased. Therefore, over time, the price relativities of some goods and services change appreciably. This adversely affects the usefulness of constant price estimates for periods distant from the base year, and implies that the base year used to derive constant price estimates needs to be changed from time to time. It was ABS practice, in common with many other national statistical agencies, to change the base year every five years. However, it has been found that rebasing every five years is commonly insufficient, and hence the international standards recommend rebasing every year and linking the resulting indexes to form annually reweighted chain volume measures.

Volume estimates, formed through annual reweighting are not generally additive. In other words, component volume estimates do not usually sum to a total in the way original current price components do. In order to minimise the impact of this characteristic, the ABS uses the latest base year as the reference year (i.e. the year when the annual volume estimate equals the current price value). Re-referencing changes the level of the volume estimates, but does not of itself change the growth rates. By adopting this approach, non-additivity does not apply to the reference year or the following year.

### **Chain price indexes and implicit price deflators**

A by-product of the calculation of volume measures is the implicit price deflator (IPD). An IPD is the price index obtained when a current price estimate is divided by the corresponding volume measure. The ABS publishes a time series of IPDs for each of the expenditure components of GDP (excluding the changes in inventories).

Chain price indexes are also published for the major expenditure aggregates. They are the prices equivalent of chain volume estimates. Quarterly chain price indexes are generally superior to IPDs for measuring price change, because the quarter-to-quarter growth rates calculated from the IPDs reflect changes in composition of the expenditure aggregate as well as pure price change. For example, it is possible for an IPD to increase or decrease from one quarter to another without there being any change in price. Changes in chain price indexes, on the other hand, only reflect pure price change.

## **National income, expenditure and product accounts**

The Australian national income, expenditure and product accounts are compiled and published each quarter, in *Australian National Accounts: National Income, Expenditure and Product* (5206.0), and in greater detail once a year, in *Australian System of National Accounts* (5204.0).

### **GDP account**

The GDP account indicates changes in Australian economic activity over time. Table 30.3 shows annual time series from 2003–04 to 2007–08. Table 30.4 shows expenditure on GDP in volume terms.

In volume terms (i.e. after the effects of price change are removed from the dollar value of Australia's production) GDP recorded a growth rate of 3.7% in 2007–08. This was higher than the 3.3% recorded in the previous year.

The GDP account can also be used to show changes in the share of income accruing to labour (i.e. compensation of employees) compared with the share accruing to capital (i.e. profits, defined as the gross operating surplus of non-financial and financial corporations). Graphs 30.5 and 30.6 show how the shares of total factor income accruing to wages and to profits have changed since 1965–66. (Total factor income is equal to the sum of compensation of employees, gross operating surplus and gross mixed income.)

The highest recorded value of the wages share of total factor income was 62.4% in 1974–75. The wages share in 2007–08 was 53.4%, slightly lower than the previous year (53.7%), and one of the lowest levels recorded in time series presented.

### 30.3 GDP ACCOUNT, Current prices

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$m	\$m	\$m	\$m	\$m
Final consumption expenditure					
General government	150 378	162 499	173 139	186 205	200 129
Households	492 681	521 028	547 458	584 875	626 793
<i>Total final consumption expenditure</i>	643 059	683 527	720 597	771 080	826 921
Gross fixed capital formation					
Private	183 059	197 385	220 823	238 948	269 851
Public	30 701	34 354	39 939	45 758	50 201
<i>Total gross fixed capital formation</i>	213 760	231 739	260 762	284 707	320 052
Changes in inventories	6 036	5 000	612	2 652	4 694
Gross national expenditure	862 854	920 266	981 972	1 058 438	1 151 668
Exports of goods and services	147 219	167 562	196 274	215 695	234 862
less Imports of goods and services	168 714	190 188	210 794	228 452	254 783
Statistical discrepancy(a)	—	—	—	—	425
<b>Gross domestic product</b>	<b>841 351</b>	<b>897 642</b>	<b>967 454</b>	<b>1 045 674</b>	<b>1 132 172</b>
Compensation of employees	400 124	431 118	464 511	501 011	539 020
Gross operating surplus	264 078	284 467	312 417	338 626	373 684
Gross mixed income	78 358	80 260	83 064	93 151	97 495
<i>Total factor income</i>	742 560	795 845	859 992	932 788	1 010 199
Taxes less subsidies on production and imports	98 791	101 800	107 458	112 886	121 672
Statistical discrepancy(b)	—	—	—	—	301
<b>Gross domestic product</b>	<b>841 351</b>	<b>897 642</b>	<b>967 454</b>	<b>1 045 674</b>	<b>1 132 172</b>

— nil or rounded to zero (including null cells)

(a) Expenditure-based.

(b) Income-based.

Source: Australian System of National Accounts, 2007-08 (5204.0).

### 30.4 EXPENDITURE ON GDP, Volume measures(a)(b)

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$m	\$m	\$m	\$m	\$m
Final consumption expenditure					
General government	170 057	176 447	180 839	186 205	192 582
Households	524 580	547 884	562 093	584 875	606 435
<i>Total final consumption expenditure</i>	694 560	724 303	742 908	771 080	799 017
Gross fixed capital formation					
Private	198 166	209 562	227 868	238 948	263 571
Public	35 314	38 400	42 042	45 758	48 666
<i>Total gross fixed capital formation</i>	233 564	247 997	269 936	284 707	312 237
Domestic final demand	928 276	972 418	1 012 854	1 055 785	1 111 254
Changes in inventories	6 209	6 102	2 298	2 652	4 346
Gross national expenditure	933 984	977 468	1 014 831	1 058 437	1 115 600
Exports of goods and services	197 382	203 407	207 886	215 695	225 345
less Imports of goods and services	173 993	195 124	209 246	228 452	257 374
Statistical discrepancy(c)	—	—	—	—	585
<b>Gross domestic product</b>	<b>956 017</b>	<b>982 786</b>	<b>1 012 269</b>	<b>1 045 674</b>	<b>1 084 156</b>

— nil or rounded to zero (including null cells)

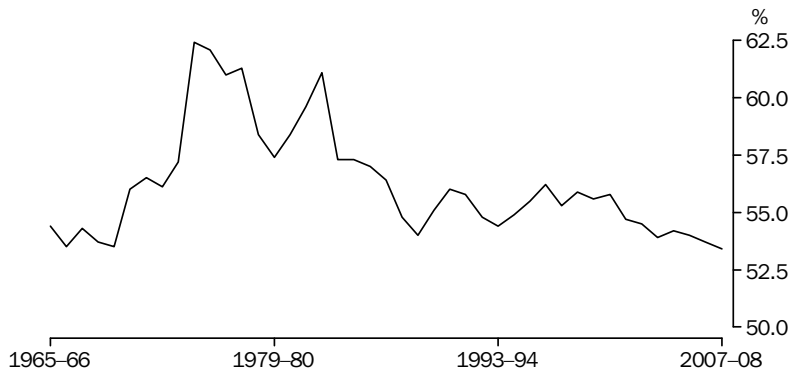
(a) Reference year is 2006-07.

(b) Volume measures for years other than 2006-07 and 2007-08 are not additive.

(c) Expenditure-based.

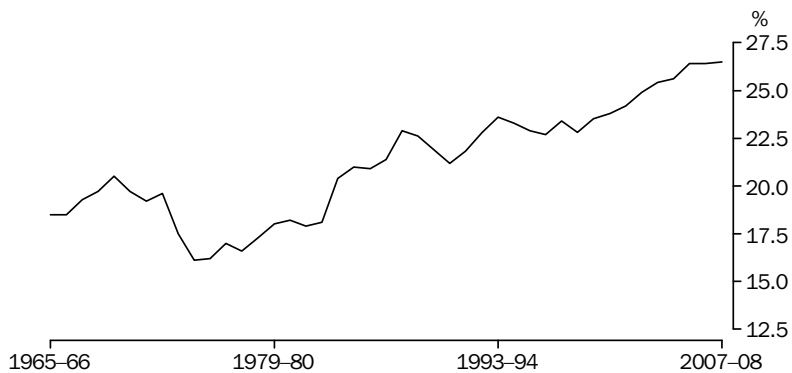
Source: Australian System of National Accounts, 2007-08 (5204.0).

### 30.5 WAGES SHARE OF TOTAL FACTOR INCOME



Source: Australian System of National Accounts (5204.0).

### 30.6 PROFITS SHARE OF TOTAL FACTOR INCOME



Source: Australian System of National Accounts (5204.0).

The profits share of total factor income has been growing steadily since 1998–99. In 2007–08 profits share was 26.5%, the highest share recorded.

### National income account

The national income account shows the sources of national income and how much of this income is spent on final consumption. That part of income which is not spent in this way is saving. Table 30.7 shows annual time series from 2003–04 to 2007–08.

Graph 30.8 shows net saving by institutional sector as a proportion of GDP for the years 1965–66 to 2007–08. Household net saving as a percentage of GDP generally fluctuated between 6% and 8% between 1965–66 and 1971–72. It

then rose to a peak of 11.5% in 1974–75. The series then gradually decreased, eventually reaching its lowest at –1.8% of GDP in 2003–04. Household net saving as a proportion of GDP remained negative until 2004–05 and since then has turned positive and in 2007–08 it was 0.4% of GDP, and household income exceeded consumption by \$4.0 billion (b) (table 30.9).

General government net saving as a proportion of GDP was positive from 1965–66 to 1973–74 before turning negative from 1974–75 to 1996–97 (except for 1988–89). It has remained positive since 1997–98. In 2007–08 general government net saving was positive at 2.9% of GDP (\$32.9b). In 2007–08 net saving of non-financial corporations was 0.1% of GDP (\$0.6b). Net saving of financial corporations has been positive at about 1% to 2% of GDP for virtually all of its

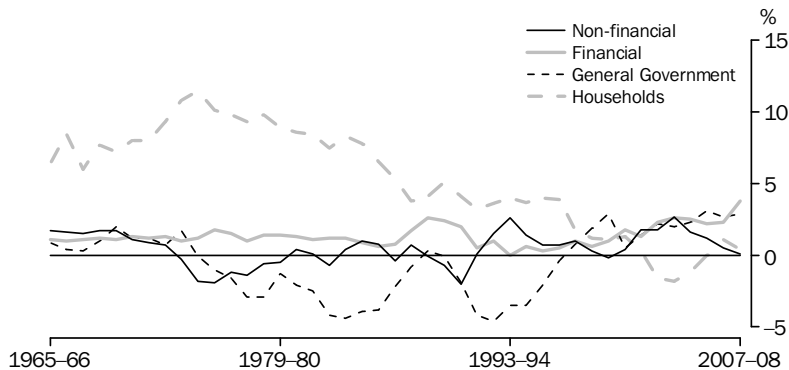
### 30.7 NATIONAL INCOME ACCOUNT, Current prices

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$m	\$m	\$m	\$m	\$m
<b>INCOME</b>					
Compensation of employees	400 124	431 118	464 511	501 011	539 020
Gross operating surplus	264 078	284 467	312 417	338 626	373 684
Gross mixed income	78 358	80 260	83 064	93 151	97 495
Taxes less subsidies on production and imports	98 791	101 800	107 458	112 886	121 672
Net primary income from non-residents	-23 840	-33 330	-37 670	-45 903	-50 197
<b>Gross national income</b>	<b>817 511</b>	<b>864 315</b>	<b>929 780</b>	<b>999 771</b>	<b>1 081 674</b>
Net secondary income from non-residents	-255	-369	-649	-296	-141
<b>Gross disposable income</b>	<b>817 256</b>	<b>863 946</b>	<b>929 131</b>	<b>999 475</b>	<b>1 081 533</b>
<b>USE OF GROSS DISPOSABLE INCOME</b>					
Final consumption expenditure					
General government	150 378	162 499	173 139	186 205	200 129
Households	492 681	521 028	547 458	584 875	626 793
<i>Total final consumption expenditure</i>	<i>643 059</i>	<i>683 527</i>	<i>720 597</i>	<i>771 080</i>	<i>826 921</i>
Net saving(a)	45 847	45 491	62 407	69 293	82 306
Consumption of fixed capital	128 350	134 927	146 126	159 102	172 306
<b>Total use of gross disposable income</b>	<b>817 256</b>	<b>863 946</b>	<b>929 131</b>	<b>999 475</b>	<b>1 081 533</b>

(a) Net saving is derived as a balancing item.

Source: Australian System of National Accounts, 2007-08 (5204.0).

### 30.8 NET SAVING, Relative to GDP



Source: Australian System of National Accounts (5204.0).

history. In 2007-08 net saving of financial corporations was 3.8% of GDP (\$43.0b).

### National capital account

The national capital account shows how the saving from the national income account and consumption of fixed capital (depreciation) are used to finance gross fixed capital formation. If, as is currently the case for Australia, the nation's saving and consumption of fixed capital are not sufficient to pay for all the fixed capital needed

for Australian production, the shortfall must be borrowed from overseas. The amount borrowed from overseas is shown in the national capital account as a negative entry for net lending to non-residents. Table 30.9 shows the annual time series from 2003-04 to 2007-08.

Graph 30.10 shows gross fixed capital formation (investment) by institutional sector as a proportion of GDP. Investment by non-financial corporations generally fell during the late 1970's but stabilised in the 1980s and 1990s (it has



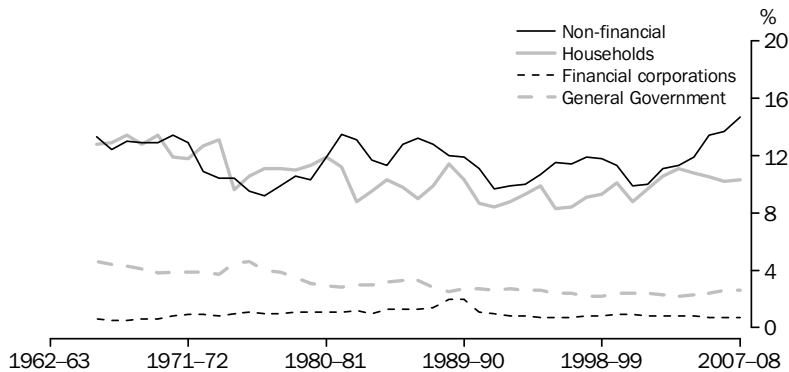
### 30.9 NATIONAL CAPITAL ACCOUNT, Current prices

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$m	\$m	\$m	\$m	\$m
<b>Net saving</b>					
Non-financial corporations	23 011	14 016	11 689	4 882	609
Financial corporations	21 660	22 205	21 033	24 277	42 975
General government	16 546	21 094	29 522	28 651	32 894
Households	-15 380	-10 497	138	11 093	4 007
<i>Total net saving</i>	45 847	45 491	62 407	69 293	82 306
Consumption of fixed capital	128 350	134 927	146 126	159 102	172 306
Net capital transfers receivable from non-residents	1 444	1 523	1 729	1 960	2 250
<b>Gross saving and capital transfers</b>	<b>175 641</b>	<b>181 942</b>	<b>210 263</b>	<b>230 355</b>	<b>256 862</b>
Gross fixed capital formation					
Private	183 059	197 385	220 823	238 948	269 851
Public corporations	11 957	14 038	16 941	18 756	20 675
General government	18 744	20 316	22 999	27 002	29 526
<i>Total gross fixed capital formation</i>	213 760	231 739	260 762	284 707	320 052
Changes in inventories					
Private non-farm	6 204	4 761	-386	2 923	4 625
Farm and public authorities	-168	239	998	-271	69
<i>Total changes in inventories</i>	6 036	5 000	612	2 652	4 694
Acquisitions less disposals of non-produced non-financial assets	72	-71	3	-423	-8
Statistical discrepancy(a)	—	—	—	—	124
Net lending to non-residents	-44 218	-54 731	-51 113	-56 573	-68 001
<b>Total capital accumulation and net lending</b>	<b>175 641</b>	<b>181 942</b>	<b>210 263</b>	<b>230 355</b>	<b>256 862</b>

— nil or rounded to zero (including null cells)  
 (a) Expenditure-based discrepancy less income-based discrepancy.

Source: Australian System of National Accounts, 2007-08 (5204.0).

### 30.10 INVESTMENT, Relative to GDP

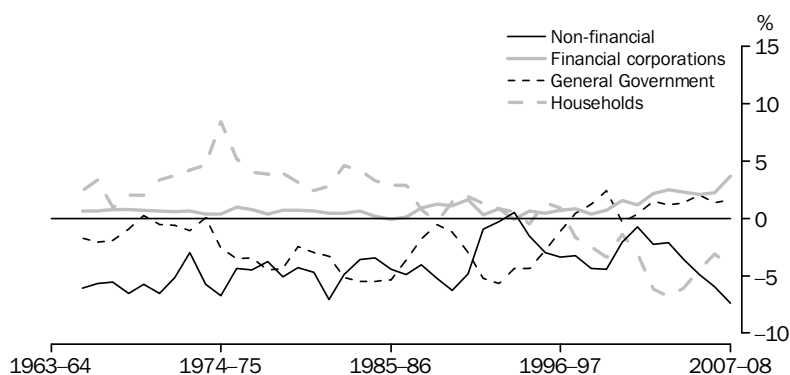


Source: Australian System of National Accounts (5204.0).

generally been above 10% of GDP). In 2007-08 investment by non-financial corporations was 14.7% of GDP. Household investment as a proportion of GDP remained steady at around 10% of GDP throughout the time series and in 2007-08 the ratio to GDP was 10.3%. General government investment as a proportion of GDP peaked at 4.6% in 1975-76 and 1986-87, and has

generally fallen since then to around 2.5% of GDP. It was 2.6% of GDP in 2007-08. The highest ever level of Financial corporations investment, expressed as a proportion of GDP, was recorded in 1989-90 (2.0%). It has generally fallen since and was 0.7% of GDP in 2007-08.

### 30.11 NET LENDING, Relative to GDP



Source: Australian System of National Accounts (5204.0).

Graph 30.11 shows net lending by institutional sector as a proportion of GDP. A positive percentage for a sector indicates that it is a net lender to other sectors; a negative percentage indicates that it is a net borrower.

The household sector has been a net lender for most years. As a proportion of GDP, net lending by households peaked in 1974–75 at 8.4%. Since then it has trended downwards and the household sector changed from a net lender to a net borrower in 1988–89, 1994–95 and 1997–98. Since 1997–98 it has been a net borrower and in 2007–08 household net borrowing was 4.1%. Non-financial corporations have been net borrowers over the entire period 1965–66 to 2007–08 (except for 1993–94), and the amounts borrowed have fluctuated significantly from year to year. As a proportion of GDP, their net borrowing was 7.4% in 2007–08.

In 2007–08 net lending of financial corporations represented 3.7% of GDP, the highest recorded level. After recording a record level of borrowing as a proportion of GDP in 1992–93 (5.7%), general government borrowing steadily declined. From 1997–98 to 1999–2000 the sector was a net lender and in 2000–01 general government was a net borrower before returning to being a net lender from 2001–02 to 2007–08. In 2007–08 general government net lending represented 1.6% of GDP.

#### External account

The external account is derived from the detailed balance of payments current and capital accounts

(see the *International accounts and trade* chapter). It shows Australia's exports and imports, incomes and transfers received by Australian residents from non-residents, and incomes and transfers payable to non-residents by Australian residents. The balance on the external account is net lending to non-residents. This is the same as the balance in the national capital account. Table 30.12 shows the external account for the last five years.

Australia has generally been a net borrower of funds from overseas. In the national accounts, this situation is reflected by a negative value for net lending to non-residents. The only exception to this pattern was in 1972–73. Net borrowing from non-residents, expressed as a proportion of GDP, increased significantly in the early-1980s and has remained at relatively high levels since then. The ratio of net borrowing from overseas to GDP in 2007–08 was 6.0%, up from 5.4% in 2006–07. Graph 30.13 shows net lending to non-residents as a proportion of GDP since 1965–66.

The growing importance of international trade to the Australian economy is illustrated by graph 30.14 which shows the ratios of exports and imports of goods and services to GDP in current prices since 1965–66. In 2007–08 the imports ratio was 22.5% and the exports ratio was 20.7%. Since 2000–01 imports increased 91.8% in volume terms compared with a 15.0% growth in volume of exports.

### 30.12 EXTERNAL ACCOUNT: Current prices

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$m	\$m	\$m	\$m	\$m
<b>INCOME ACCOUNT</b>					
Income of non-residents					
Imports of goods and services	168 714	190 188	210 794	228 452	254 783
Primary income receivable					
Compensation of employees	1 906	1 331	1 563	1 863	2 302
Property income receivable	38 935	53 740	62 581	80 028	88 524
<i>Total primary income receivable</i>	<i>40 841</i>	<i>55 071</i>	<i>64 144</i>	<i>81 891</i>	<i>90 826</i>
Secondary income receivable	4 446	4 637	5 251	5 451	5 400
<b>Total income of non-residents</b>	<b>214 001</b>	<b>249 896</b>	<b>280 189</b>	<b>315 794</b>	<b>351 009</b>
Uses of income of non-residents					
Exports of goods and services	147 219	167 562	196 274	215 695	234 862
Primary income payable					
Compensation of employees	1 024	1 127	1 220	1 309	1 382
Property income payable	15 977	20 614	25 254	34 679	39 247
<i>Total primary income payable</i>	<i>17 001</i>	<i>21 741</i>	<i>26 474</i>	<i>35 988</i>	<i>40 629</i>
Secondary income payable	4 191	4 268	4 602	5 155	5 259
Balance on external income account	45 590	56 325	52 839	58 956	70 259
<b>Total use of income of non-residents</b>	<b>214 001</b>	<b>249 896</b>	<b>280 189</b>	<b>315 794</b>	<b>351 009</b>
<b>CAPITAL ACCOUNT</b>					
Balance on external income account	45 590	56 325	52 839	58 956	70 259
Capital transfers receivable	1 127	1 151	944	1 035	1 132
less Capital transfers payable	2 571	2 674	2 673	2 995	3 382
Total net capital transfers	-1 444	-1 523	-1 729	-1 960	-2 250
<b>Gross saving and capital transfers</b>	<b>44 146</b>	<b>54 802</b>	<b>51 110</b>	<b>56 996</b>	<b>68 009</b>
Acquisitions less disposals of non-produced non-financial assets	-72	71	-3	423	8
Net lending (+) / net borrowing (-)	44 218	54 731	51 113	56 573	68 001
<b>Total capital accumulation and net lending (+) / net borrowing (-)</b>	<b>44 146</b>	<b>54 802</b>	<b>51 110</b>	<b>56 996</b>	<b>68 009</b>

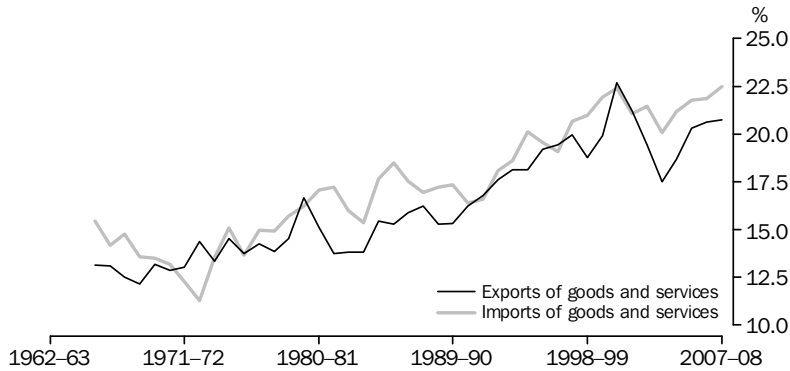
Source: Australian System of National Accounts, 2007-08 (5204.0).

### 30.13 NET LENDING TO OVERSEAS, Relative to GDP



Source: Australian System of National Accounts (5204.0).

### 30.14 EXPORTS AND IMPORTS, Relative to GDP



Source: Australian System of National Accounts (5204.0).

## State accounts

As well as Australia's national accounts, the ABS produces annual accounts for each of Australia's states and territories. These provide estimates of state final demand and gross state product (GSP). GSP is the average of the volume estimate of GSP(P) production approach and income/expenditure approach GSP(I/E). State final demand is equal to the sum of government and household final consumption expenditure and public and private gross fixed capital formation.

An important use of state accounts is to compare the performance of each state and territory (table 30.15). The volume measure of GSP in 2007–08 increased in all states. Queensland experienced the strongest growth (up 5.3%) followed by Western Australia (up 5.2%) and Northern Territory (up 3.9%). The Australian Capital Territory showed the weakest growth rate in 2007–08 of 2.5%. Growth in New South Wales, Victoria, Tasmania and Australian Capital Territory were below the Australian GDP growth rate of 3.7%.

For some analytical purposes it is important to allow for the impact of population growth on movements in GSP. The annual growth in GSP per person was lower than GSP growth for all states. Every state had positive growth in GSP per person due to positive population growth in all states. Four states showed growth rates in GSP per person that were stronger than the Australian

growth rate per capita of 2.1%. Queensland (up 2.9%), Western Australia and South Australia (both up 2.7%) showed the strongest growth in GSP per person. (Graph 30.16).

## National balance sheet

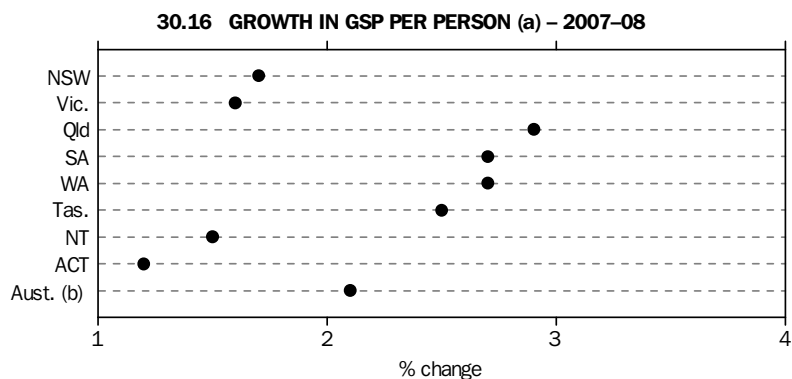
The national balance sheet provides estimates of the value of Australia's produced, non-produced and financial assets, its liabilities to the rest of the world, and the net worth (defined as the difference between total assets and liabilities, including the value of equity in Australian enterprises owned by non-residents) of the total economy.

### 30.15 GROSS STATE PRODUCT, Chain volume measures—2007–08

	Average annual compound growth	
	Annual rate (1997–98 to growth)	2007–08)
	%	%
New South Wales	2.8	2.8
Victoria	3.2	3.2
Queensland	5.3	5.0
South Australia	3.8	2.6
Western Australia	5.2	4.4
Tasmania	3.4	2.5
Northern Territory	3.9	4.3
Australian Capital Territory	2.5	3.5
<b>Australia(a)</b>	<b>3.7</b>	<b>3.5</b>

(a) GDP.

Source: Australian National Accounts: State Accounts (5220.0).



(a) Volume measures. (b) Gross domestic product.

Source: Australian National Accounts: State Accounts (5220.0).

The major national and sectoral balance sheet tables are published in *Australian System of National Accounts* (5204.0). Balance sheets are provided for each of the four domestic sectors: non-financial corporations, financial corporations, general government and households (including unincorporated enterprises and non-profit institutions serving households).

The non-produced assets included in the balance sheet cover experimental estimates of the value of some of Australia's natural resources: subsoil assets, timber available for log production and land. The monetary estimates of natural resources contained in the balance sheet are underpinned by physical estimates of particular natural resources. Further, since valuation of natural resources is a difficult and contentious undertaking, the monetary estimates of these natural resources should be considered in conjunction with the physical estimates.

The natural resource estimates are used to monitor the availability and exploitation of these resources and to assist in the formulation of environmental policies. More generally, data on the level, composition and change in assets and liabilities shown in the balance sheet indicate the extent of economic resources available to, and claims on, a nation and each of its institutional sectors.

Sectoral balance sheets provide information necessary for analysing a number of topics; for example, the estimation of household liquidity; and the computation of widely used ratios, such as assets to liabilities, net worth to total liabilities,

non-financial to financial assets, and debt to income. In a period of concern about the level of saving in Australia, national and sector balance sheets provide additional information on the relationships between consumption, saving and wealth accumulation.

### Current price balance sheet estimates

Australia's net worth at the end of June 2008 was estimated to be \$6,390.0b in current prices, an increase of 7.1% since 30 June 2007 (table 30.17). Graph 30.18 shows that net worth has exhibited especially strong growth in the years since 2001–02 during which annual rates of up to 13.9% have been achieved.

Total produced assets at 30 June 2008 were estimated at \$3,536.8b, an increase of 10.0% from the level at the end of June 2007. The estimated value of produced assets rose at an average annual rate of 7.8% between 30 June 2000 and 30 June 2008. At 30 June 2008, dwellings, non-dwelling construction, and machinery and equipment represented approximately 94% of total produced assets.

The difference between Australia's assets and liabilities with the rest of the world represents the net international investment position. Australia's net liabilities stood at \$1,717.8b at 30 June 2008, a rise of 4.7% on the position at the end of June 2007. Net liabilities as a proportion of net worth have increased steadily from 14.3% at 30 June 1989 to a peak of 27.5% at 30 June 2007. At 30 June 2008 the proportion was 26.9%.

**30.17 NATIONAL BALANCE SHEET, Current prices—30 June**

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$b	\$b	\$b	\$b	\$b
<b>Total assets</b>	<b>5 684.5</b>	<b>6 065.8</b>	<b>6 805.7</b>	<b>7 604.6</b>	<b>8 107.7</b>
Non-financial assets	5 046.1	5 422.2	5 975.8	6 590.2	7 082.1
Produced assets	2 485.6	2 709.7	2 952.9	3 215.2	3 536.8
Fixed assets	2 369.4	2 584.0	2 820.1	3 077.8	3 388.3
Tangible fixed assets	2 336.2	2 549.1	2 783.6	3 039.9	3 348.6
Machinery and equipment	361.6	384.3	417.8	445.6	476.4
Non-dwelling construction	966.5	1 061.5	1 176.7	1 311.8	1 474.9
Livestock – fixed assets(a)	16.3	16.5	16.9	17.4	18.2
Dwellings	991.7	1 086.8	1 172.2	1 265.1	1 379.0
Intangible fixed assets	33.3	35.0	36.5	37.9	39.8
Computer software	32.4	34.0	35.4	36.6	38.4
Entertainment, literary or artistic originals	0.9	1.0	1.1	1.2	1.4
Inventories	116.1	125.7	132.8	137.5	148.5
Private non-farm(b)	93.9	103.0	109.0	113.7	124.5
Farm	7.1	7.4	8.0	7.8	8.7
Public authorities	2.6	2.5	2.9	2.9	2.0
Livestock – inventories	4.4	4.6	4.8	4.6	4.6
Plantation standing timber(c)	8.1	8.2	8.2	8.5	8.7
Non-produced assets(c)	2 560.5	2 712.5	3 022.9	3 375.0	3 545.3
Tangible non-produced assets	2 557.1	2 709.1	3 019.7	3 372.0	3 542.5
Land	2 311.1	2 439.3	2 702.7	3 015.9	3 147.8
Subsoil assets	238.2	261.8	308.5	347.1	385.1
Native standing timber	2.2	2.1	2.1	2.2	2.2
Spectrum	5.6	6.0	6.4	6.8	7.3
Intangible non-produced assets	3.4	3.3	3.2	3.0	2.8
Spectrum licences	3.4	3.3	3.2	3.0	2.8
Financial assets with the rest of the world(d)	638.4	643.6	829.9	1 014.3	1 025.6
Monetary gold and SDRs	1.7	1.7	2.4	2.2	2.7
Currency and deposits	41.4	48.3	47.7	67.2	50.7
Securities other than shares	128.0	122.8	149.9	179.0	220.5
Loans and placements	69.2	73.4	90.3	115.9	109.3
Shares and other equity	370.7	356.8	479.3	572.0	553.1
Other accounts receivable	27.4	40.6	60.2	78.0	89.4
<b>Liabilities to the rest of the world</b>	<b>1 091.7</b>	<b>1 150.1</b>	<b>1 370.5</b>	<b>1 640.7</b>	<b>1 717.8</b>
Currency and deposits	75.7	59.6	75.2	73.3	81.7
Securities other than shares	453.3	509.0	621.6	730.0	791.1
Loans and placements	115.2	142.4	145.0	174.3	186.1
Shares and other equity	434.6	427.9	517.1	651.0	645.3
Other accounts payable	13.0	11.2	11.7	12.2	13.6
<b>Net worth(d)</b>	<b>4 592.8</b>	<b>4 915.8</b>	<b>5 435.1</b>	<b>5 963.8</b>	<b>6 390.0</b>
Memorandum items					
Consumer durables	208.6	217.7	227.7	240.1	253.6
Direct investment					
Foreign investment in Australia	274.1	274.5	298.8	346.5	379.4
Australian investment abroad	232.0	198.8	273.2	317.8	311.1

(a) Livestock- fixed assets included in the balance sheet include all animals and not just sheep and cattle as shown in the capital stock tables.

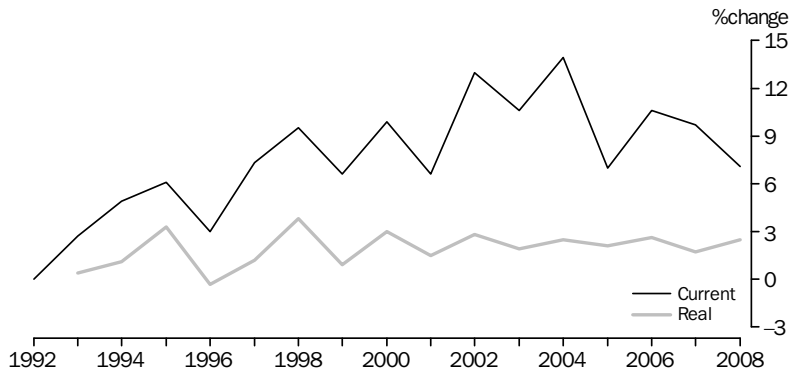
(b) Includes for all periods the privatised marketing authorities.

(c) Experimental estimates.

(d) Estimates differ from those in table 31.17 due to compilation at different points in time.

Source: Australian System of National Accounts, 2007–08 (5204.0).

### 30.18 CHANGE IN TOTAL NET WORTH—30 June



Source: Australian System of National Accounts, 2007–08 (5204.0).

### Real/volume balance sheets

An article introducing experimental real/volume balance sheets for Australia was published in the March quarter 2001 issue of *Australian National Accounts: National Income, Expenditure and Product* (5206.0). The real/volume balance sheet is designed to remove the effect of price changes, in much the same way as for other real and volume estimates, and allow for comparisons of changes in the value of Australia's assets and liabilities over time, free of the direct effects of changes in prices.

Volume estimates for the major categories of fixed asset stocks described as 'produced assets' – such as dwellings, non-dwelling construction, and machinery and equipment – have been available for many years in the Australian national accounts. However, volume estimates for stocks of non-produced, non-financial assets (land and other natural resources, etc.) and real estimates of financial assets, liabilities and net worth (wealth) have only recently become available. The calculation of volume and real estimates for some of these components is subject to some practical and conceptual difficulties, and therefore the term 'experimental' has been attached to these initial estimates.

The values of non-financial assets, such as dwellings, equipment and standing timber, can be decomposed into prices and volumes. Volume indexes, which measure the volume change of an aggregate between one period and another, can thus be derived by holding prices the same in the two periods.

Financial assets and liabilities cannot be decomposed into prices and volumes, and so it is impossible to derive volume indexes for them. The same is true of gross operating surplus and other income flows, and is the reason why volume estimates of GDP cannot be derived by aggregating volume indexes of its income components. However, it is possible to deflate income flows, financial assets and liabilities by a price index, such as the implicit price deflator for gross national expenditure, in order to measure changes in the purchasing power of the aggregate in question. Such measures are called 'real' estimates.

Real net worth has been derived by aggregating the volume estimates of the non-financial assets with the real estimates of financial assets less liabilities.

### Real/volume balance sheet estimates

Australia's real net worth (total assets less total liabilities to the rest of the world) increased by 2.5% over the year ended 30 June 2008 compared with the average annual growth over the period 30 June 1992 to 30 June 2008 of 2.1%. In 2007–08 the real value of non-financial assets grew by 2.9%, the real value of financial assets fell by 1.9% and the real value of liabilities grew by 1.6% (table 30.19).

### 30.19 NATIONAL BALANCE SHEET, Volume/Real(a)—30 June

	2003-04	2004-05	2005-06	2006-07	2007-08
	\$b	\$b	\$b	\$b	\$b
<b>Total assets</b>	<b>6 640.9</b>	<b>6 787.2</b>	<b>7 119.5</b>	<b>7 441.8</b>	<b>7 612.6</b>
Non-financial assets	5 962.2	6 116.8	6 277.4	6 443.6	6 633.1
Produced assets	2 777.2	2 888.2	3 007.5	3 133.3	3 288.0
Fixed assets	2 650.8	2 756.3	2 875.4	2 998.8	3 148.9
Tangible fixed assets	2 621.3	2 723.5	2 839.6	2 960.3	3 107.0
Machinery and equipment	1 118.8	1 158.9	1 195.1	1 231.8	1 268.0
Non-dwelling construction	1 140.2	1 173.2	1 217.8	1 270.4	1 330.0
Livestock – fixed assets(b)	355.0	383.0	418.0	450.8	492.6
Dwellings	16.9	16.9	17.2	16.8	16.5
Intangible fixed assets	30.0	32.9	35.8	38.5	41.8
Computer software	29.0	31.9	34.6	37.3	40.5
Entertainment, literary or artistic originals	1.0	1.1	1.1	1.2	1.3
Inventories	126.3	131.8	132.1	134.5	139.1
Private non-farm(c)	103.1	108.3	107.9	110.7	115.1
Farm	7.2	7.5	8.1	7.8	8.8
Public authorities	2.6	2.5	2.9	2.9	2.0
Livestock – inventories	4.3	4.4	4.5	4.6	4.6
Plantation standing timber(d)	9.2	9.2	8.8	8.5	8.5
Non-produced assets(d)	3 195.0	3 234.3	3 271.7	3 310.5	3 345.1
Tangible non-produced assets	3 191.3	3 230.8	3 268.5	3 307.6	3 342.5
Land	2 871.8	2 903.7	2 933.4	2 963.8	2 994.2
Subsoil assets	306.1	314.0	322.9	332.5	339.1
Native standing timber	2.0	2.1	2.1	2.2	2.2
Spectrum	5.9	6.2	6.5	6.7	7.0
Intangible non-produced assets	3.6	3.5	3.2	3.0	2.7
Spectrum licences	3.6	3.5	3.2	3.0	2.7
Financial assets with the rest of the world	684.9	673.9	843.0	998.3	979.5
Monetary gold and SDRs	1.9	1.8	2.4	2.2	2.6
Currency and deposits	44.4	50.6	48.5	66.1	48.4
Securities other than shares	137.3	128.6	152.3	176.2	210.6
Loans and placements	74.2	76.8	91.7	114.1	104.4
Shares and other equity	397.7	373.6	486.9	563.0	528.2
Other accounts receivable	29.4	42.5	61.2	76.8	85.3
<b>Liabilities to the rest of the world</b>	<b>1 171.2</b>	<b>1 204.2</b>	<b>1 392.2</b>	<b>1 614.8</b>	<b>1 640.5</b>
Currency and deposits	81.2	62.4	76.4	72.1	78.0
Securities other than shares	486.3	532.9	631.4	718.5	755.5
Loans and placements	123.5	149.1	147.3	171.5	177.7
Shares and other equity	466.2	448.1	525.2	640.7	616.3
Other accounts payable	13.9	11.7	11.9	12.0	13.0
<b>Net worth</b>	<b>5 469.7</b>	<b>5 583.0</b>	<b>5 727.3</b>	<b>5 827.1</b>	<b>5 972.1</b>

(a) Reference year for volume and real measures is 2006–07.

(b) Livestock- fixed assets included in the balance sheet include all animals and not just sheep and cattle as shown in the capital stock tables.

(c) Includes for all periods the privatised marketing authorities.

(d) Experimental estimates.

Source: Australian System of National Accounts, 2007–08 (5204.0).

## Additional national accounts measures

In addition to the core set of Australian national accounts statistics, the ABS compiles and publishes more detailed and specialised products which enable a better understanding of particular

economic entities or processes. This section briefly outlines the following: Financial accounts; Input-Output tables; satellite accounts; and productivity measures.



## Financial Accounts

The ABS produces quarterly and annual information on the levels of financial assets and liabilities of each institutional sector of the economy, the market for financial instruments, and inter-sectoral transactions in financial assets and liabilities classified by financial instrument. The financial accounts provide an insight into the borrowing and lending activities of each sector within the economy. The financial accounts also provide information on the composition of financial instruments issued by the various sectors during a particular period. National and sectoral financial accounts, which show major financial aggregates, are published annually in *Australian System of National Accounts* (5204.0). For more information see the Financial system chapter and the publication *Australian National Accounts: Financial Accounts* (5232.0).

## Input-Output tables

Input-Output (I-O) tables are an integral part of the Australian System of National Accounts. They present a comprehensive view of the supply and use of products in the economy and the incomes generated from production. The tables are based on the relationship in which the value of the output of each industry is expressed as the sum of the values of all the inputs to that industry. These inputs include the compensation of employees, any profits made from production, taxes on production paid less any subsidies received and the use of the outputs of other industries (e.g. the output of steel from the steel industry may be used as an input by the motor vehicle industry as part of the production process of producing cars).

I-O tables provide a comprehensive level of detail, presenting information on 109 industry and product groups. As a result, they show a much more detailed disaggregation of the production account than is available in *Australian System of National Accounts* (5204.0). I-O tables show the flows of products (goods and services) through the production process.

The tables are essentially an accounting record of the flows in the economy in a reference year. Analytically the I-O tables show total resources in terms of domestic output and imports, and the uses of goods and services in terms of intermediate consumption, final consumption, gross fixed capital formation and exports. They

are mostly used to investigate the likely effects on the rest of the economy from observed or postulated disturbances to part of it. Such examples include the effects of an increase or decrease in the demand for a product, the substitution of imports for local production, an increase in wages, etc.

Most recently a major use of the I-O tables has been to support modelling of the impacts of an Emissions Trading Scheme. The most recent I-O tables are in respect of the 2005–06 reference year.

Supply-Use (S-U) tables are also compiled as a part of the Australian System of National Accounts. In essence, they are simpler constructs of an I-O table and are an integral part of the compilation of I-O tables. They are also used to derive aggregates in *Australian System of National Accounts* (5204.0) and are compiled every year for three adjacent reference periods. The I-O approach to compiling GDP estimates allows for the quarterly current price GDP figures to be benchmarked to balanced S-U tables. At the time the I-O tables are compiled the measures of current price annual GDP and its components are consistent between S-U tables, I-O tables and the production account. The most recent set of I-O tables available are for 2005–06. For more information see *Australian National Accounts: Input-Output tables – Electronic Publication* (5209.0.55.001).

## Satellite accounts

The concept of a satellite account was introduced in the *System of National Accounts 1993* to expand the core national accounts for selected areas of interest, while using relevant concepts and structures from the core national accounts. Satellite accounts allow the development of an integrated set of statistics about a particular sector which crosses a number of industries or sectors.

### Tourism satellite account (TSA)

The TSA measures the contribution of tourism to the Australian economy. The emphasis in the TSA is on the measurement of tourism consumption and the size of the tourism industry, including its contribution to GDP. Within the TSA, a number of key economic measures associated with tourism are able to be identified. These include: tourism gross value added; tourism GDP; the

tourism share of the value-added of major tourism-related industries (such as Accommodation, restaurants and cafes, and Air and water transportation); total household and business tourism consumption by type of products; consumption by overseas visitors; and employment generated by tourism. Together, these data form an integrated set of statistics on tourism products within the framework of the international standards. For more information refer to the *Tourism* chapter and the publication *Tourism Satellite Account* (5249.0).

### **Information and Communication Technology satellite account (ICTSA)**

The ICTSA measures the contribution of ICT to the Australian economy in 2002–03, in particular, the contribution of ICT to key macro-economic variables such as GDP. It provides details on Australian production of various ICT products, as well as related imports, exports, household consumption, business spending and investment. Together, these data form an integrated set of statistics on ICT products within the framework of the international standards. For more information refer to *Information and Communication Technology Satellite Account* (5259.0).

### **Non-profit Institutions (NPIs) satellite account (NPISA)**

NPIs play an important role in the provision of welfare, social and other services in Australia. The

NPISA for Australia provides information on the economic impact of NPIs for 2006–07. This publication represents estimates of the direct contribution that NPIs make to the Australian economy and, in particular, the contribution of NPIs to key macro-economic variables such as GDP. As this satellite account is an integrated set of statistics on NPIs within the internationally recognised *System of National Accounts 1993*, it provides a valuable policy and research tool with a wide range of applications. For more information refer to *Australian National Accounts: Non-Profit Institutions Satellite Account* (5256.0).

### **Productivity estimates**

Measures of productivity growth are important in understanding long-term improvements in Australia's living standards and changes in Australia's international competitiveness. At the most basic level, productivity growth occurs when the volume of output rises faster than the volume of inputs. A limited selection of productivity estimates are published as part of *Australian National Accounts: National Income, Expenditure and Product* (5206.0) with a more detailed range of statistics and analysis of productivity estimates published in *Australian System of National Accounts* (5204.0). The *Information Paper: Industry Estimates of Multifactor Productivity* (5260.0.00.001) presents experimental estimates of multifactor productivity for the 12 industries defined to comprise the market sector of the economy.

## Fifty years of Quarterly National Accounts

The release of the June quarter 2009 *National Income, Expenditure, and Product* (5206.0) marks an important milestone for the Australian National Accounts. With the first official quarterly estimates published in respect of September 1959, users now have available fifty years of quarterly time series detailing the structure and performance of the Australian economy.

The initial quarterly national accounts (released in December 1960) consisted of only income and expenditure estimates in current price original terms. Since then the Accounts have greatly expanded to better meet user needs. Some of the key milestones in this expansion include the introduction of:

- Seasonal adjustment (1967)
- Constant price estimates (1971), and chain volume measures (1998)
- Industry production estimates (1988)
- Flow of funds estimates (1990), leading to quarterly Financial Accounts (1992)
- Supply-Use benchmarking (1998)

In addition to these major developments, there have been innumerable other analytical series added into the accounts such as labour productivity measures (i.e. GDP per hour worked, Unit Labour Costs) and real income measures (Gross Domestic Income and Gross National Disposable Income) amongst others. From an initial publication of some 200 data series in 1960, the release of each quarter of the Australian National Accounts now sees some 15,000 data series released via the ABS website.

While preserving the time series, the ABS has ensured the National Accounts remain relevant

and contemporary through updated standards and classifications. The international standards for producing National Accounts are set out in the System of National Accounts (SNA). The Australian National Accounts have kept pace with the evolving international standards by the introduction of SNA68 in 1973 and SNA93 in 1998. In the September 2009 quarter Australia is the first country to introduce the latest SNA (SNA08). Also in the September 2009 quarter the Accounts move to a new industry classification (*Australian and New Zealand Standard Industry Classification* edition 2006), a classification of industry which better reflects the contemporary Australian economy.

Critical to the acceptance and use of the National Accounts is assisting users in their understanding the Accounts. An important development on this front first took place in 1981 when the first Concepts Sources and Methods (CSM) publication describing the National Accounts was released. The CSM was updated in 1990 and again in 2000. On both occasions the updates followed significant changes introduced to the National Accounts. A major component of the 2010 work program will be the development of another update to the Concepts, Sources and Methods material.

A coherent time series is critical whether the analysis is aimed at understanding and identifying the nature of a phenomenon in a data-set, or whether it is attempting to forecast that data-set. With fifty years of time series and 15,000 series produced each quarter, users of National Accounts statistics today are better served than ever before.

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### **ABS products**

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*Australian National Accounts: Input-Output tables – Electronic Publication* (5209.0.55.001)

*Australian National Accounts: National Income, Expenditure and Product* (5206.0)

*Australian National Accounts: Non-Profit Institutions Satellite Account* (5256.0)

*Australian National Accounts: State Accounts* (5220.0)

*Australian System of National Accounts* (5204.0)

*Australian System of National Accounts: Concepts, Sources and Methods* (5216.0.)

*Information and Communication Technology Satellite Account* (5259.0)

*Information Paper: Australian National Accounts, Introduction of Chain Volume and Price Indexes* (5248.0)

*Information Paper: Industry Estimates of Multifactor Productivity* (5260.0.55.001)

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*Tourism Satellite Account* (5249.0)

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## INTERNATIONAL ACCOUNTS AND TRADE

This chapter presents statistics on Australia's international accounts, covering exports and imports of goods, international trade in services, international investment transactions, and levels of Australia's foreign financial assets and liabilities.

These statistics are used by economic analysts and policy advisers to monitor, evaluate and forecast developments in Australia's external trade and external sector accounts for the purposes of domestic and international macroeconomic analysis and policy determination. They are used by governments, government agencies, businesses, industry associations, research institutions and others to analyse patterns of trade and assess particular types of transactions and financial claims and liabilities between Australian residents and non-residents, for purposes such as developing economic policy, trade promotion and negotiations, and market and industry performance studies.

The information presented in this chapter is on the same conceptual basis as the information presented in the *National Accounts* chapter of this edition of Year Book Australia. However, estimates in the two chapters differ as they are based on information compiled at different points in time.

2009-10

Statistics contained in this chapter are the most recent available at the time of preparation. Where available, the ABS website <<http://www.abs.gov.au>> provides access to more recent data.

Users can browse tables, time-series spreadsheets, data cubes, information papers, associated products and media releases that relate to topics covered in the Year Book and download the information from the ABS website at no cost.

## Overview of the international accounts

International accounts cover the closely related and integrated balance of payments and international investment position statistics.

Diagram 31.1 presents the broad structure and relationship of these statistics.

Australia's balance of payments provides a statistical statement that systematically summarises the economic transactions between residents of Australia and residents of other countries. Residents, who may be people or businesses, need not be Australian nationals. Transactions cover the provision (changes in ownership) of goods, services and income, financial claims on and liabilities to the rest of the world, and transfers without anything provided in exchange (such as gifts).

Australia's international investment position is a balance sheet of the stock of foreign financial assets and liabilities of Australian residents. International investment statistics integrate the balance sheet positions at two points in time with information on increases and decreases in the levels of these assets and liabilities as a result of the changes due to transactions (investment flows, including reinvestment of earnings) as shown in the financial account of the balance of payments, together with the other changes that affect either the value of the stock (price, exchange rate) or the volume of the stock (other adjustments) of financial assets and liabilities.

Australia's international accounts statistics presented in this chapter, which cover both the balance of payments and the international investment position, are compiled in accordance with international statistical standards as defined in the fifth edition of the *International Monetary Fund's Balance of Payments Manual*. The concepts of residency, transactions, valuation and time of recording are common to the balance of payments and international investment position statistics.

The balance of payments accounts, which present systematically the economic transactions between Australia and the rest of the world, incorporate four types of economic transactions. The first involves the provision of real resources, that is, transactions in goods, services and income. The second involves the provision of financial

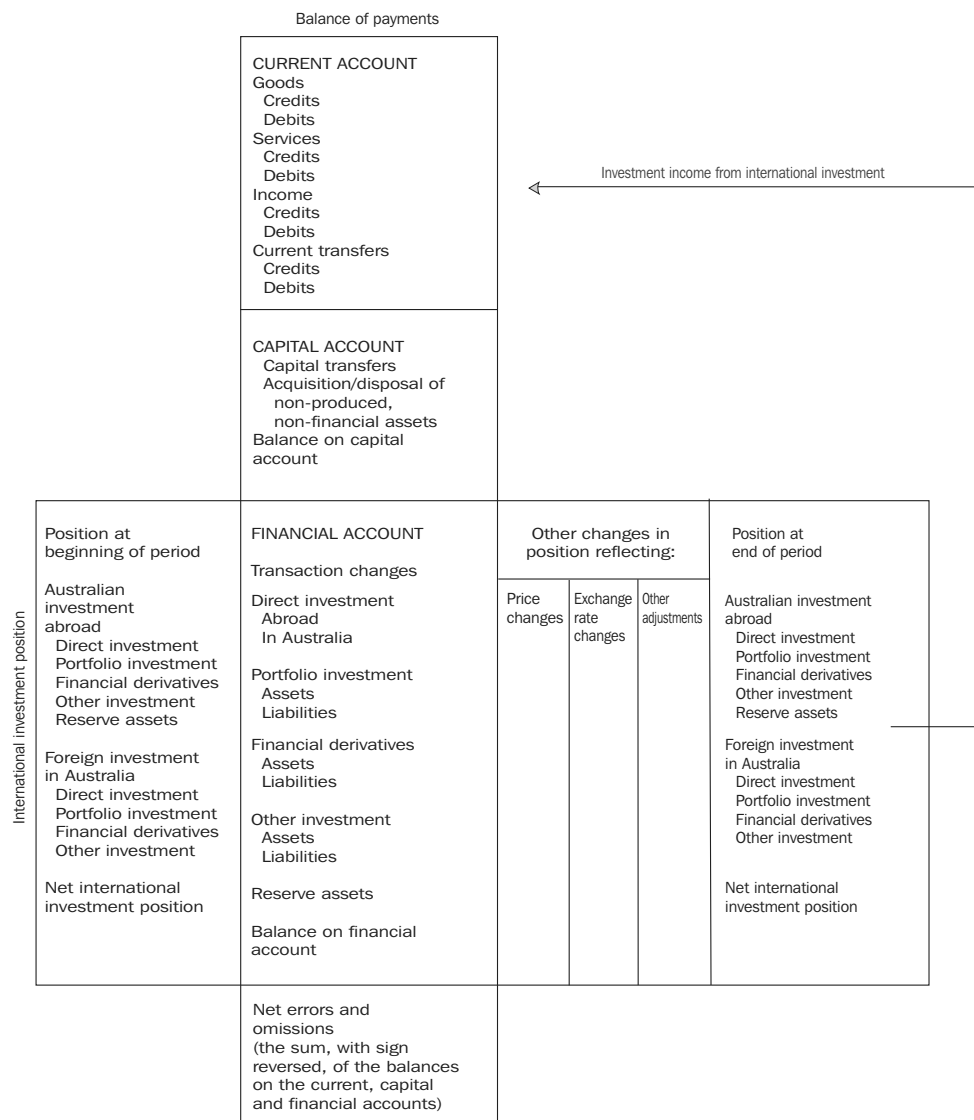
resources, that is, financial assets and liabilities. The third covers those one-sided transactions of a current nature (described as current transfers) that are offsets to transactions in current real or financial resources undertaken without an exchange. Current transfers are not associated with, nor do they finance, fixed assets. For example, famine relief, whether in cash or in kind, would have its offset in current transfers. The fourth type is capital transfers that offset transactions undertaken, without exchange, in fixed assets or in their financing. For example, the provision of foreign aid funds to build roads is classified as a capital transfer.

The first and third of these types of transactions make up the current account, while the second type makes up the financial account. The fourth type (capital transfers), together with a minor item for the acquisition and disposal of non-produced, non-financial assets (such as patents), make up the capital account.

The double entry accounting system is used for recording balance of payments transactions. Under the conventions of the system, the compiling economy records credit entries for (a) exports of goods, provision of services, provision of the factors of production to another economy and (b) financial items reflecting a reduction in the economy's external assets or an increase in external liabilities. Conversely, the compiling economy records debit entries for (a) imports of goods, acquisition of services, use of production factors provided by another economy and (b) financial items reflecting an increase in assets or a decrease in liabilities. In other words, for real or financial assets, a positive figure (credit) indicates a decrease in holdings, and a negative figure (debit) indicates an increase. For liabilities in the form of financial instruments, the rule is reversed; a positive figure indicates an increase and a negative one, a decrease.

Transactions in a double entry accounting system are reflected in pairs of equal credit and debit entries. For example, an export transaction for which payment is received through the banking system involves a credit entry for providing the good to a non-resident and a debit entry for being provided with foreign exchange assets as payment for the export. Any entries for which there is no quid pro quo are matched by special offsetting entries. Such offsetting entries are made in the categories 'current transfers' (when

### 31.1 RELATIONSHIP BETWEEN THE BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION STATEMENTS



Source: Balance of Payments and International Investment Position, Australia: Concepts, Sources and Methods (5331.0).

offsetting the provision of current resources such as food for famine relief) and ‘capital transfers’ (when offsetting the provision of capital resources such as development aid to build a new dam).

In principle, the net sum of all credit and debit entries is zero. In practice, some transactions are

not measured accurately (errors), while others are not measured at all (omissions). Equality between the sums of the credit and debit entries is then brought about by the inclusion of a ‘net errors and omissions’ item which balances the accounts.



Transactions should be valued in the balance of payments at market prices. However, for practical reasons, transactions are generally valued in the statistics at transaction prices as this basis provides the closest practical approximation to the market price principle.

Transactions recorded in the balance of payments should be recorded at the time of change of ownership. For current account transactions, this occurs when ownership of goods changes, or services are provided. Investment income is recorded on a full accrual basis, that is, when it is earned. Reinvested earnings are calculated for the earnings of the period of account. Current and capital transfers should be recorded when the goods, services, cash, etc., to which they are offsets, change ownership. Those transfers, such as taxes and fines, which are imposed by one party on another, should ideally be recorded at the time of occurrence of the underlying transactions or other flows or events that give rise to the liability to pay. For financial account transactions, the time of recording is at the change of ownership of the financial claims, which by convention is the time at which transactions are entered in the books of the transactors.

In practice, the nature of the available data sources is such that the time of recording of transactions will often differ from the time of change of ownership. Where practical, timing adjustments are made for significant transactions to ensure that they are recorded in the time period in which change of ownership occurs.

As described above, international investment position statistics are the balance sheet of the levels (stock) of Australia's foreign financial assets and liabilities. While the international investment position statistics form an integral part of Australia's international accounts (diagram 31.1), they are also useful in their own right, for example, in determining the impact of foreign investment policies and the level of Australia's foreign assets and liabilities, including foreign debt. They are also useful when analysing the behaviour of financial markets.

As with the balance of payments, market price is the principal method of valuation in international investment position statistics, and financial assets and liabilities are recognised on a change of ownership basis, that is, at the time when the

foreign financial asset or liability is acquired, sold, repaid or otherwise disposed of.

## Components of the international accounts

Details are provided in *Statistical overview* of the current, capital and financial accounts of Australia's balance of payments. Current and capital account transactions are generally recorded 'gross'. This means that, for each item in the current and capital accounts, the credit entries are recorded separately from the debit entries. For example, goods credits are shown separately from goods debits. For each item in the financial account, however, debit and credit transactions are combined to produce a single result for the item which may be either a net credit or a net debit. For example, in a given period, non-resident purchases of shares issued by companies in Australia (credit) are netted against sales of Australian shares to residents by non-residents (debit) and the net result is recorded in the financial account as either a net credit or a net debit.

The current account records transactions between Australian residents and non-residents in goods, services, income and current transfers, while the capital account records capital transfers and the acquisition/disposal of non-produced non-financial assets and the financial account shows transactions in foreign financial assets and liabilities.

## International trade in goods

Merchandise trade statistics cover all movable goods which add to (imports) or subtract from (exports) Australia's stock of material resources, although some goods are excluded for conceptual or practical reasons, for example, those goods temporarily brought to Australia for subsequent forwarding to foreign destinations, and low-value imports and exports in the parcel post system.

The merchandise trade statistics are compiled from information submitted by importers and exporters to the Australian Customs and Border Protection Service. However, various adjustments relating to coverage, timing, classification and valuation are necessary to put international merchandise trade statistics on a balance of payments basis. Consequently, the merchandise

exports and imports statistics by country and by commodity shown in tables 31.7 to 31.10 differ from the data shown in table 31.2 which is on a balance of payments basis.

International merchandise trade is classified by commodity, by country of origin/destination, by Australian state of production/destination, and by industry of origin.

The international standard for the classification of internationally traded goods by commodity is the Harmonized System, a World Customs Organization classification which groups goods according to their component materials, from raw materials through to processed and manufactured products.

The Harmonized System is the basis of the exports classification, the Australian Harmonized Export Commodity Classification, and the imports classification, the Combined Australian Customs Tariff Nomenclature and Statistical Classification (Customs Tariff).

The Australian Bureau of Statistics (ABS) also classifies export and import statistics according to:

- the United Nations (UN) Standard International Trade Classification (SITC Rev. 4) which groups goods according to the degree of processing they have undergone, from food and crude raw materials through to highly transformed manufactures. Commodity statistics in this section are presented according to SITC Rev. 4.
- the UN classification Broad Economic Categories which classifies international trade for the purposes of general economic analysis according to the main end use of the commodities traded.

Australia's international merchandise trade statistics are compiled in broad agreement with the UN recommendations for the compilation of international merchandise trade statistics. More information on the concepts, sources and methods used is included in *International Merchandise Trade, Australia: Concepts, Sources and Methods* (5489.0).

### **International trade in services**

International trade in services covers all services rendered by Australian residents to non-residents (exports) and by non-residents to residents

(imports). Services are broadly defined as products other than tangible goods, although they also include transactions in certain goods such as those purchased by travellers.

As international trade in services covers a diverse range of activities, a variety of data sources and methods are used to compile estimates of the different service types.

Australia's international trade in services statistics are compiled in accordance with the *International Monetary Fund's Balance of Payments Manual, fifth edition*. This framework has been further elaborated in the 'Extended Balance of Payments Services Classification', as detailed in the UN publication *Manual on Statistics of International Trade in Services, 2002*. International trade in services statistics are compiled for transportation, travel, communications, construction, computer and information services, royalties and licence fees, other business services, personal, cultural and recreational services and government services. Some information is also available by partner country and state.

More information on the concepts, sources and methods used to produce Australia's international trade in services statistics is included in *Balance of Payments and International Investment Position, Australia: Concepts, Sources and Methods, 1998* (5331.0).

### **Income**

Income, comprising investment income (e.g. dividends and interest) and compensation of employees (e.g. wages), covers income earned by Australian residents from non-residents (credits) or earned by non-residents from residents (debits).

### **Current transfers and the capital account**

Current transfers cover the offsetting entries required when resources are provided, without something of economic value being received in return. When non-residents provide resources to Australian residents, offsetting credits are required; when residents provide resources to non-residents, offsetting debits are required. General government transfers (e.g. official foreign aid) are distinguished from transfers by other sectors.

The capital account covers capital transfers (such as migrants' funds), with general government distinguished from other sectors, and the acquisition/disposal of non-produced, non-financial assets.

## Financial account and international investment position

The initial dissection of the financial account is by functional type of capital – direct investment, portfolio investment, financial derivatives, other investment and reserve assets. Where appropriate, these components are further dissected into assets and liabilities. Within the asset and liability categories, details are presented of instruments of investment and resident sectors (for other than direct investment), and in some cases the contractual maturity of the instruments.

The primary distinction used in international investment position statistics is between assets and liabilities. Assets primarily represent Australian investment abroad, and liabilities primarily represent foreign investment in Australia. The difference between the two represents the net international investment position (graph 31.14 and table 31.17). Australian investment abroad refers to the stock of foreign financial assets owned by Australian residents, after netting off any debt liabilities of Australian direct investors to their direct investment enterprises abroad. Conversely, foreign investment in Australia refers to the stock of financial assets in Australia owned by non-residents, after netting off any debt claims of Australian direct investment enterprises on their foreign direct investors. The breakdown below this asset/liability presentation is by functional type of capital (table 31.16).

While many types of instruments of investment can be identified, similar instruments are combined for analytical reasons and ease of reporting.

## Statistical overview

### Balance of payments

The balance on current account for 2008–09 was a deficit of \$38.4 billion (b), a decrease of \$34.1b (47%) on the previous year (table 31.2). The net income deficit fell by \$5.0b (10%) with a decrease in income credits of \$1.8b (4%) and a decrease in

income debits of \$6.8b (7%). The balance on goods and services was a surplus of \$5.8b, a turnaround of \$29.3b on the deficit of \$23.6b recorded in 2007–08. The net goods balance was a surplus of \$8.2b and the net services balance was a deficit of \$2.4b.

The surplus on capital account increased by \$0.1b (6%) to \$2.3b in 2008–09.

The financial account recorded a net inflow of investment into Australia in 2008–09 of \$37.2b. This was largely driven by net portfolio investment of \$55.2b together with net direct investment of \$10.9b. This was countered by net decreases in other investment of –\$10.7b, reserve assets of –\$11.9b and financial derivative settlements of –\$6.4b.

Graph 31.3 shows the differing influences of the balance on goods and services (trade balance) and the net income deficit on the balance on current account. The net income deficit rose from \$18.1b in 1994–95 to \$43.6b in 2008–09. The underlying level of net income drives the level of the current account deficit, as Australia continues to service its external liabilities. However, the balance on goods and services has been more volatile than net income as shown by the turnarounds in early 2000 and in 2008–09.

### Ratios

The ratio of the current account deficit to gross domestic product (GDP) was –3.2% in 2008–09, a decrease on the previous year (table 31.4).

### Exchange rates

Graph 31.5 shows movements in the annual average exchange rates for the major four currencies.

### International trade in goods and services (balance of payments basis)

Australia's international trade in goods and services (chain volume measures) for the five years to 2008–09 is shown in table 31.6.

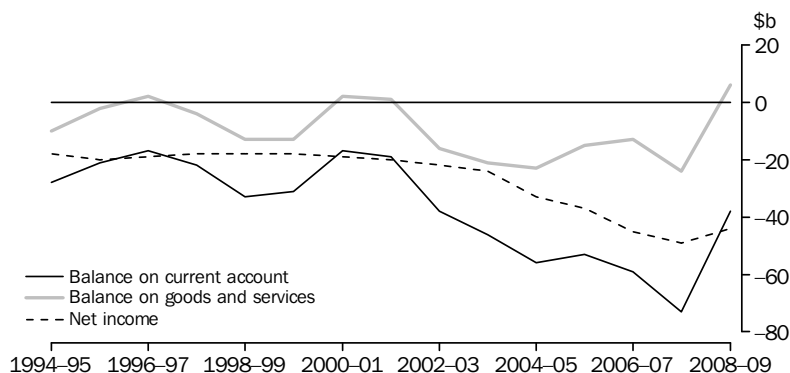
Chain volume measures of exports and imports remove the effects of price changes. They provide measures, in dollar values, which indicate changes in the actual volume of exports and imports.

### 31.2 BALANCE OF PAYMENTS, Summary

	2004-05	2005-06	2006-07	2007-08	2008-09
	\$m	\$m	\$m	\$m	\$m
<b>Current account</b>	<b>-56 325</b>	<b>-52 627</b>	<b>-58 529</b>	<b>-72 504</b>	<b>-38 447</b>
Goods and services	-22 626	-14 520	-12 757	-23 561	5 805
Credits	167 562	196 274	215 695	233 853	285 701
Debits	-190 188	-210 794	-228 452	-257 414	-279 896
Goods	-23 006	-15 291	-14 510	-22 346	8 214
Credits	127 867	154 425	169 514	182 818	231 728
Debits	-150 873	-169 716	-184 024	-205 164	-223 514
Services	380	771	1 753	-1 215	-2 409
Credits	39 695	41 849	46 181	51 035	53 973
Debits	-39 315	-41 078	-44 428	-52 250	-56 382
Income	-33 330	-37 458	-45 433	-48 601	-43 612
Credits	21 741	26 692	36 454	42 022	40 224
Debits	-55 071	-64 150	-81 887	-90 623	-83 836
Current transfers	-369	-649	-339	-342	-640
Credits	4 268	4 602	5 155	5 264	4 991
Debits	-4 637	-5 251	-5 494	-5 606	-5 631
<b>Capital and financial account</b>	<b>57 389</b>	<b>53 691</b>	<b>59 444</b>	<b>70 315</b>	<b>39 469</b>
Capital account	1 594	1 726	2 380	2 167	2 287
Capital transfers	1 523	1 729	1 957	2 168	2 533
Credits	2 674	2 673	2 995	3 382	4 072
Debits	-1 151	-944	-1 038	-1 214	-1 539
Net acquisition/disposal of non-produced, non-financial assets	71	-3	423	-1	-246
Financial account	55 795	51 965	57 064	68 148	37 182
Direct investment	51 494	-6 456	10 129	26 749	10 925
Abroad	59 307	-29 695	-30 616	-33 036	-44 016
In Australia	-7 813	23 239	40 745	59 785	54 941
Portfolio investment	544	62 564	63 338	-4 965	55 248
Financial derivatives	961	-3 768	3 469	-7 820	-6 372
Other investment	10 919	5 230	255	9 892	-10 722
Reserve assets	-8 123	-5 605	-20 127	44 292	-11 897
<b>Net errors and omissions</b>	<b>-1 064</b>	<b>-1 064</b>	<b>-915</b>	<b>2 189</b>	<b>-1 022</b>

Source: Balance of Payments and International Investment Position, Australia (5302.0).

### 31.3 CURRENT ACCOUNT, Summary



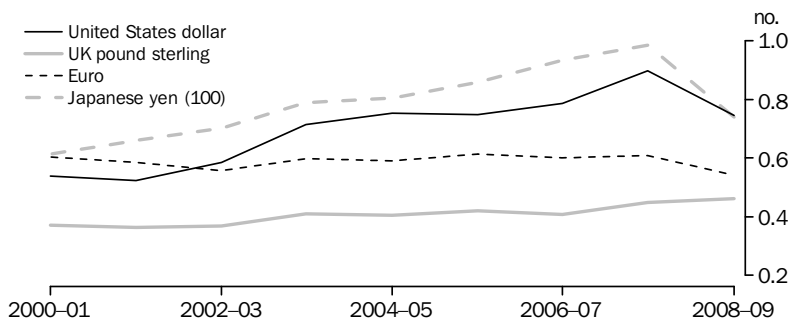
Source: Balance of Payments and International Investment Position, Australia (5302.0).

### 31.4 RATIOS

	2004-05	2005-06	2006-07	2007-08	2008-09
	%	%	%	%	%
<i>To GDP</i>					
Current account	-6.3	-5.4	-5.6	-6.4	-3.2
Goods and services	-2.5	-1.5	-1.2	-2.1	0.5
Credits	18.7	20.3	20.6	20.7	23.9
Debits	-21.2	-21.8	-21.8	-22.7	-23.4
Income	-3.7	-3.9	-4.3	-4.3	-3.6
Net international investment position	56.4	56.0	60.1	59.7	60.6
Net foreign equity	7.9	3.7	7.2	5.2	7.7
Net foreign debt	48.5	52.3	52.9	54.5	52.9
<i>To goods and services credits</i>					
Net investment income	-19.8	-18.9	-20.9	-20.5	-14.9
Net foreign equity	-9.9	-9.7	-9.6	-8.5	-4.8
Net foreign debt	-9.8	-9.2	-11.3	-12.0	-10.1

Source: Balance of Payments and International Investment Position, Australia (5302.0).

### 31.5 EXCHANGE RATES, Units of foreign currency per \$(a)



(a) Exchange rates are provided by the Reserve Bank of Australia in respect of each trading day. Annual averages are derived from these rates.

Source: Balance of Payments and International Investment Position, Australia (5302.0).

The chain volume measures of Australia's exports of goods and services increased by \$4.0b (2%), and Australia's imports of goods and services decreased by \$6.5b (2%) between 2007-08 and 2008-09. In comparison, the current price value of those exports, which incorporates both volume and price changes, increased by \$51.8b (22%) (table 31.2). This indicates that, on average, the prices of Australia's exports increased more rapidly than their volumes over the period.

Table 31.6 also presents various price indexes for Australia's trade in goods and services. The implicit price deflators (IPDs) are derived by dividing the current price measures (table 31.2)

by the corresponding chain volume measures. These IPDs reflect not only price change, but also compositional effects from year to year.

Australia's terms of trade, which is a measure of the purchasing power of its exports over imported goods and services (derived by dividing the IPD for credits by the IPD for debits) rose by 7.6% to 113.2 in 2008-09, reflecting a 20.0% rise in the IPD for goods and services credits and a 11.5% rise in the IPD for goods and services debits.

### 31.6 CHAIN VOLUME MEASURES, IMPLICIT PRICE DEFLATORS AND TERMS OF TRADE(a)

		2004-05	2005-06	2006-07	2007-08	2008-09
<i>Chain volume measures</i>						
Goods and services	\$m	8 284	-1 361	-12 757	-35 476	-24 953
Goods and services credits	\$m	203 408	207 887	215 695	224 500	228 526
Goods credits	\$m	160 337	164 308	169 515	175 092	178 265
Services credits	\$m	42 546	43 326	46 182	49 408	50 260
Goods and services debits	\$m	-195 125	-209 246	-228 452	-259 976	-253 479
Goods debits	\$m	-154 917	-168 016	-184 024	-205 966	-201 651
Services debits	\$m	-40 101	-41 250	-44 427	-54 012	-51 829
<i>Implicit price deflators</i>						
Goods and services credits	index	82.4	94.4	100.0	104.2	125.0
Goods credits	index	79.7	94.0	100.0	104.4	130.0
Services credits	index	93.3	96.6	100.0	103.3	107.4
Goods and services debits	index	97.5	100.7	100.0	99.0	110.4
Goods debits	index	97.4	101.0	100.0	99.6	110.8
Services debits	index	98.0	99.6	100.0	96.7	108.7
<i>Terms of trade</i>						
Goods and services	index	84.5	93.7	100.0	105.2	113.2
Goods	index	81.9	93.0	100.0	104.8	117.3
Services	index	95.2	97.0	100.0	106.8	98.8

(a) Reference year for chain volume measures, price and term of trade indexes is 2006-07.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

### International trade in goods by commodity (merchandise trade basis)

In 2008-09 Australia's exports of goods were worth more than goods imported. This resulted in a surplus of \$11.0b, a turnaround of \$32.5b on the deficit of \$21.5b recorded in 2007-08.

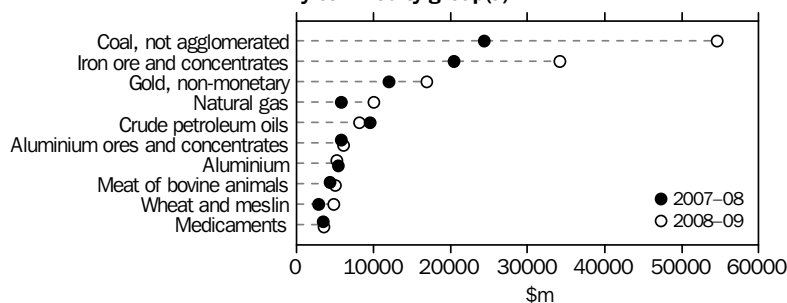
Graph 31.7 shows the top ten commodity exports in 2008-09. In 2008-09 total exports of goods

increased by \$49.6b (27%) to \$230.5b. The largest increases were:

- Coal, not agglomerated, up \$30.1b (123%)
- Iron ore and concentrates, up \$13.7b (67%)
- Gold, non-monetary, up \$4.8b (40%)
- Natural gas, up \$4.2b (72%).

Graph 31.8 shows the top ten commodity imports in 2008-09. In 2008-09 total imports of goods increased by \$17.2b (8%) to \$219.5b. The largest increases were:

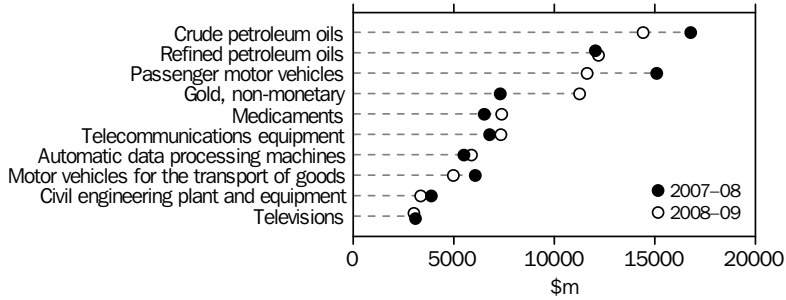
**31.7 MERCHANDISE EXPORTS OF MAJOR COMMODITIES, By commodity group(a)**



(a) Abbreviated description used. Refer to UN Standard International Trade Classification, Revision 4 (SITC Rev 4), 3-digit code.

Source: *International Trade in Goods and Services, Australia* (5368.0).

### 31.8 MERCHANDISE IMPORTS OF MAJOR COMMODITIES, By commodity group(a)



(a) Abbreviated description used. Refer to UN Standard International Trade Classification, Revision 4 (SITC Rev 4), 3-digit code.

Source: *International Trade in Goods and Services, Australia* (5368.0).

- Gold, non-monetary, up \$3.9b (54%)
- Medicaments, up \$0.9b (14%).

The largest decreases were:

- Passenger motor vehicles, down \$3.5b (23%)
- Crude petroleum oils, down \$2.3b (14%).

#### International trade in goods by country (merchandise trade basis)

For exports, country refers to the country to which the goods were consigned at the time of export. For imports, country refers to the country of origin of the goods, that is, where the majority of processing of the goods took place. Table 31.9 shows merchandise exports to Australia's ten main destinations; table 31.10 shows merchandise imports from the ten main countries of origin, in 2008–09.

In 2008–09 Australia recorded a merchandise trade surplus of \$11.0b. The following major trading partners were the main contributors to the overall surplus:

- *Japan* – trade surplus of \$34.7b, up \$19.4b due to a \$17.6b increase in exports. Contributing to the increase in exports were coal, coke and briquettes (up \$12.5b) and metalliferous ores and metal scrap (up \$2.1b).
- *India* – trade surplus of \$13.3b, up \$5.6b due to a \$6.1b increase in exports. Contributing to the increase in exports were coal, coke and briquettes (up \$4.0b) and non-monetary gold (up \$1.7b).

- *Republic of (South) Korea* – trade surplus of \$12.7b, up \$4.6b due to a \$5.0b increase in exports. Contributing to the increase in exports were coal, coke and briquettes (up \$4.6b) and metalliferous ores and metal scrap (up \$0.9b).
- *Taiwan* – trade surplus of \$4.1b, up \$1.7b due to a \$1.7b increase in exports. Contributing to the increase in exports were coal, coke and briquettes (up \$1.5b) and metalliferous ores and metal scrap (up \$0.2b).

In 2008–09 Australia recorded a merchandise trade deficit with a number of countries, the largest of which were:

#### 31.9 INTERNATIONAL MERCHANDISE EXPORTS, Top 10 Countries—2008–09

	Value (FOB)	Percentage share of Value (FOB)	Average annual growth over five years
	\$m	%	%
Japan	52 547	22.8	21.5
China	39 302	17.1	31.7
Korea, Republic of (South)	19 207	8.3	17.7
India	15 434	6.7	26.0
United States of America	11 598	5.0	4.1
United Kingdom	11 510	5.0	17.5
New Zealand	8 553	3.7	1.1
Taiwan	8 156	3.5	17.1
Singapore	5 508	2.4	12.5
Thailand	4 939	2.1	14.9

Source: *International Trade in Goods and Services, Australia* (5368.0).

### 31.10 INTERNATIONAL MERCHANDISE IMPORTS, Top 10 Countries—2008–09

	Value (Customs Value)	Percentage share of Value (Customs Value)	Average annual growth over five years
	\$m	%	%
China	37 046	16.9	19.3
United States of America	25 342	11.5	4.9
Japan	17 838	8.1	2.1
Singapore	13 463	6.1	21.4
Germany	11 106	5.1	6.8
Thailand	10 753	4.9	24.0
United Kingdom	9 024	4.1	10.7
Malaysia	8 325	3.8	12.1
New Zealand	7 042	3.2	6.9
Korea, Republic of (South)	6 521	3.0	6.0

Source: International Trade in Goods and Services, Australia (5368.0).

- *United States of America* – trade deficit of \$13.7b, a small increase on the previous year's deficit.
- *Germany* – trade deficit of \$8.9b, a decrease of \$0.2b on the previous year's deficit, with a \$0.8b increase in exports and \$0.5b increase in imports.

### International trade in services

Table 31.11 provides details of Australia's international trade in services, by service type.

During the period 2004–05 to 2006–07 Australia recorded annual surpluses on its international trade in services. However for 2007–08 and 2008–09 Australia recorded annual deficits. The 2008–09 services deficit increased \$1.2b (98%), with an increase in exports of \$2.9b (6%) and an increase in imports of \$4.1b (8%). The major contributors to services exports in 2008–09 were personal travel services, of which over half were education-related; transportation services; passenger transportation services; and miscellaneous business, professional and technical services. The major contributors to services imports were personal travel services, miscellaneous business, professional and technical services, freight services, and passenger transportation services.

Tables 31.12 and 31.13 show Australia's main trading partners for exports and imports of services in 2007–08.

In 2007–08 Australia recorded a deficit on its trade in services with its major services trading partner, the United States of America, and a small surplus with the United Kingdom. Deficits were recorded for most European trading partners, while surpluses were recorded with a number of Asian trading partners, most notably China, India and the Republic of (South) Korea.

### International investment position

Australia's net international investment position is the difference between the levels of Australia's foreign financial liabilities and the levels of its foreign financial assets. Historically, Australia has had a net liability position with the rest of the world.

Graph 31.14 shows the components of Australia's international investment position, indicating that the growth in Australia's net international liabilities between 30 June 1999 and 30 June 2009 is mostly due to a rise in Australia's net foreign debt. At 30 June 2009 Australia's net foreign liabilities of \$725.9b were comprised of net foreign debt of \$633.2b and net foreign equity of \$92.7b.

Table 31.17 provides a reconciliation between opening and closing levels for foreign financial assets, foreign financial liabilities and Australia's net international investment position for the past three financial years. Increases and decreases in these assets and liabilities are due to financial transactions (investment flows), price changes, exchange rate changes and other adjustments.

### Foreign debt

Australia's foreign debt liabilities include borrowing from non-residents and other non-equity liabilities to non-residents such as derivatives positions with a negative market value. Foreign debt assets include lending to non-residents and other non-equity assets such as derivatives positions with a positive market value. The majority of public sector debt assets are held by the Reserve Bank of Australia as reserve assets.

Table 31.15 shows foreign debt assets and liabilities and net foreign debt attributable to the public sector (general government plus public



### 31.11 INTERNATIONAL TRADE IN SERVICES, By service type

	2004-05	2005-06	2006-07	2007-08	2008-09
	\$m	\$m	\$m	\$m	\$m
<b>EXPORTS</b>					
Transportation services	8 002	8 208	8 617	9 247	8 126
Passenger(a)	4 144	4 104	4 237	4 118	3 705
Freight	704	608	609	637	588
Other	3 154	3 496	3 771	4 492	3 833
Travel services	21 440	22 624	25 161	28 252	30 959
Business	1 725	2 085	2 514	2 710	2 687
Personal	19 715	20 539	22 647	25 542	28 272
Communications services(b)	831	834	801	746	981
Construction services	106	134	136	24	120
Insurance services	684	704	704	724	747
Financial services	998	1 002	1 004	1 035	1 080
Computer and information services	1 251	1 198	1 482	1 586	1 818
Royalties and licence fees	706	772	887	777	831
Other business services	4 263	4 840	5 934	7 111	7 671
Merchanting and other trade-related	653	729	782	956	1 080
Operational leasing	19	35	88	87	129
Miscellaneous business, professional and technical	3 591	4 076	5 064	6 068	6 462
Personal, cultural and recreational	547	659	607	685	792
Government services n.i.e.	867	874	848	848	848
<b>Total</b>	<b>39 695</b>	<b>41 849</b>	<b>46 181</b>	<b>51 035</b>	<b>53 973</b>
<b>IMPORTS</b>					
Transportation services	-13 796	-14 508	-15 360	-16 380	-15 874
Passenger(a)	-5 780	-6 284	-6 876	-7 278	-6 336
Freight	-7 500	-7 776	-8 036	-8 600	-8 933
Other	-516	-448	-448	-502	-605
Travel services	-14 507	-15 090	-15 934	-20 153	-22 161
Business	-2 472	-2 512	-2 601	-3 114	-2 842
Personal	-12 035	-12 578	-13 333	-17 039	-19 319
Communication services(b)	-842	-829	-864	-971	-1 434
Construction services	—	—	—	—	—
Insurance services	-872	-900	-900	-932	-969
Financial services	-527	-581	-600	-620	-648
Computer and information services	-1 095	-1 067	-1 427	-1 478	-1 665
Royalties and licence fees	-2 482	-2 734	-3 185	-3 516	-3 540
Other business services	-3 314	-3 488	-4 203	-6 193	-7 851
Merchanting and other trade-related	-200	-188	-209	-224	-207
Operational leasing	-698	-769	-867	-843	-795
Miscellaneous business, professional and technical	-2 416	-2 531	-3 127	-5 126	-6 849
Personal, cultural and recreational services	-1 120	-1 080	-1 107	-1 159	-1 392
Government services n.i.e.	-760	-801	-848	-848	-848
<b>Total</b>	<b>-39 315</b>	<b>-41 078</b>	<b>-44 428</b>	<b>-52 250</b>	<b>-56 382</b>

— nil or rounded to zero (including null cells)  
 (a) Passenger transportation services includes agency fees and commission receipts for air transport.

(b) Communication services includes other services n.i.e..  
 Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

### 31.12 SERVICES EXPORTS, Top 10 Countries—2007–08

	Value \$m	Percentage share of value	Average annual growth over five years
		%	%
United States of America	5 871	11.5	2.7
United Kingdom	4 723	9.3	2.2
China	4 433	8.7	20.8
Singapore	4 131	8.1	13.0
New Zealand	3 475	6.8	6.7
India	2 524	4.9	37.9
Japan	2 498	4.9	-5.2
Korea, Republic of (South)	1 887	3.7	13.7
Hong Kong	1 627	3.2	-0.2
Malaysia	1 460	2.9	7.1

Source: International Trade in Goods and Services, Australia (5368.0).

### 31.13 SERVICES IMPORTS, Top 10 Countries—2007–08

	Value \$m	Percentage share of value	Average annual growth over five years
		%	%
United States of America	8 871	17.0	7.3
Singapore	4 886	9.4	15.2
United Kingdom	4 168	8.0	1.6
New Zealand	2 501	4.8	4.4
Japan	2 467	4.7	5.5
Hong Kong	1 842	3.5	4.1
Thailand	1 841	3.5	20.2
China	1 398	2.7	7.7
Germany	1 272	2.4	1.0
Switzerland	1 063	2.0	0.4

Source: International Trade in Goods and Services, Australia (5368.0).

financial and non-financial corporations) versus the private sector. At 30 June 2009 the public sector was in a net debt liability position with non-residents of \$30.5b. Of total private sector net foreign debt of \$602.7b at 30 June 2009, private financial corporations accounted for \$437.1b and private non-financial corporations accounted for \$165.6b.

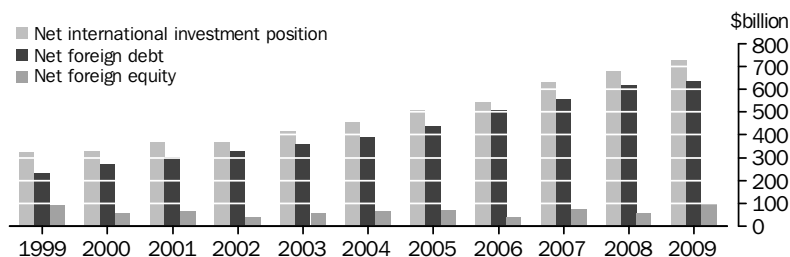
### Levels of foreign investment in Australia and Australian investment abroad

In table 31.16, levels of investment are categorised by direction (Australian investment abroad and foreign investment in Australia) and functional category (direct, portfolio, financial derivatives, other and reserve assets).

Direct investment is a category of international investment that reflects the objective of obtaining a lasting interest by a resident in one economy in an enterprise in another economy, and implies a significant degree of influence by the investor in the management of the enterprise. A foreign direct investment relationship is established when an investor, who is a resident in one economy, holds 10% or more of the ordinary shares or voting stock of an enterprise (direct investment enterprise) in another economy. The portfolio investment category covers investment in equity where the investor holds less than 10% of the ordinary shares or voting stock of an enterprise and investment in debt securities. The remaining categories are financial derivatives, other investment and reserve assets (in the case of Australian investment abroad).

The level of Australian investment abroad rose \$6.5b over 2008–09, while the level of foreign

### 31.14 NET INTERNATIONAL INVESTMENT POSITION—30 June



Source: Balance of Payments and International Investment Position, Australia (5302.0).

### 31.15 LEVELS OF FOREIGN DEBT—30 June

	2005	2006	2007	2008	2009
	\$m	\$m	\$m	\$m	\$m
<b>Foreign debt assets(a)</b>	<b>-286 811</b>	<b>-349 936</b>	<b>-441 485</b>	<b>-479 903</b>	<b>-556 764</b>
Public sector	-73 023	-82 725	-97 895	-57 601	-83 145
Private sector	-213 788	-267 211	-343 590	-422 302	-473 619
<b>Foreign debt liabilities(a)</b>	<b>722 135</b>	<b>856 291</b>	<b>994 650</b>	<b>1 096 553</b>	<b>1 189 939</b>
Public sector	83 606	88 451	81 374	89 500	113 614
Private sector	638 529	767 840	913 277	1 007 054	1 076 324
<b>Net foreign debt</b>	<b>435 324</b>	<b>506 355</b>	<b>553 165</b>	<b>616 650</b>	<b>633 174</b>
Public sector	10 583	5 726	-16 522	31 899	30 469
Private sector	424 741	500 629	569 687	584 751	602 705

(a) Foreign debt levels between direct investors and direct investment enterprises are recorded on a gross basis for assets and liabilities.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

### 31.16 LEVELS OF AUSTRALIAN INVESTMENT ABROAD AND FOREIGN INVESTMENT IN AUSTRALIA—30 June

	2005	2006	2007	2008	2009
	\$m	\$m	\$m	\$m	\$m
<b>Levels of Australian investment abroad</b>	<b>-608 852</b>	<b>-791 618</b>	<b>-968 687</b>	<b>-1 002 741</b>	<b>-1 009 242</b>
Direct investment abroad(a)	-198 820	-272 102	-316 844	-318 218	-303 893
Portfolio investment assets	-230 606	-310 169	-397 863	-408 829	-362 866
Financial derivative assets	-36 813	-42 326	-51 132	-90 179	-87 932
Other investment assets	-86 444	-103 206	-123 165	-149 660	-202 241
Reserve assets	-56 170	-63 815	-79 682	-35 856	-52 311
<b>Levels of foreign investment in Australia</b>	<b>1 115 291</b>	<b>1 333 491</b>	<b>1 596 816</b>	<b>1 678 611</b>	<b>1 735 133</b>
Direct investment in Australia(b)	274 482	301 158	351 246	391 596	408 080
Portfolio investment liabilities	654 008	825 903	1 000 261	974 964	966 944
Financial derivative liabilities	40 016	37 133	62 234	97 051	91 514
Other investment liabilities	146 784	169 296	183 076	215 000	268 594

(a) Net direct investment abroad, after deduction of liabilities to direct investment enterprises abroad.

(b) Net direct investment in Australia, after deduction of claims of Australian direct investment enterprises on direct investors.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

investment in Australia rose \$56.5b over the same period. The difference largely mirrors the increase in the net International Investment Position (table 31.17). However, the items 'Australian investment abroad' and 'Foreign investment in Australia', in table 31.16, do not equate exactly with foreign assets and liabilities respectively, in table 31.17. The difference is due

to netting off of assets and liabilities in regard to direct investment, both abroad and in Australia. In table 31.16, debt claims by direct investment enterprises on their direct investors are netted off against liabilities to direct investors (footnotes (a) and (b)). These items are not netted off in table 31.17.

### 31.17 INTERNATIONAL INVESTMENT POSITION

	Position at beginning of period	CHANGES IN POSITION REFLECTING				Position at end of period(a)
		Transactions	Price changes	Exchange rate changes	Other adjustments	
		\$m	\$m	\$m	\$m	
<b>NET INTERNATIONAL INVESTMENT POSITION</b>						
<b>Total</b>						
2006-07	541 873	57 066	16 673	12 992	-472	628 129
2007-08	628 129	68 149	-31 431	11 321	-298	675 870
2008-09	675 870	37 180	-18 642	31 454	29	725 890
<b>Equity</b>						
2006-07	35 518	-6 214	16 831	29 086	-258	74 964
2007-08	74 964	-28 184	-20 966	33 433	-28	59 220
2008-09	59 220	66 269	11 218	-43 279	-712	92 716
<b>Debt</b>						
2006-07	506 355	63 280	-158	-16 095	-215	553 165
2007-08	553 165	96 333	-10 467	-22 113	-269	616 650
2008-09	616 650	-29 088	-29 860	74 733	740	633 174
<b>FOREIGN ASSETS (b)</b>						
<b>Total</b>						
2006-07	-830 906	-144 355	-66 596	25 155	138	-1 016 566
2007-08	-1 016 566	-90 534	31 906	26 764	-182	-1 048 612
2008-09	-1 048 612	-63 398	133 633	-73 055	-108	-1 051 539
<b>Equity</b>						
2006-07	-480 970	-63 539	-59 590	29 086	-66	-575 081
2007-08	-575 081	-67 233	40 245	33 433	-75	-568 709
2008-09	-568 709	-19 563	136 858	-43 279	-82	-494 774
<b>Debt</b>						
2006-07	-349 936	-80 816	-7 006	-3 931	205	-441 485
2007-08	-441 485	-23 301	-8 340	-6 671	-107	-479 903
2008-09	-479 903	-43 835	-3 225	-29 777	-26	-556 764
<b>FOREIGN LIABILITIES (c)</b>						
<b>Total</b>						
2006-07	1 372 779	201 420	83 270	-12 163	-611	1 644 695
2007-08	1 644 695	158 683	-63 337	-15 442	-116	1 724 482
2008-09	1 724 482	100 578	-152 277	104 508	135	1 777 429
<b>Equity</b>						
2006-07	516 488	57 326	76 421	—	-190	650 045
2007-08	650 045	39 048	-61 210	—	46	627 929
2008-09	627 929	85 832	-125 641	—	-630	587 490
<b>Debt</b>						
2006-07	856 291	144 095	6 847	-12 163	-420	994 650
2007-08	994 650	119 633	-2 127	-15 442	-162	1 096 553
2008-09	1 096 553	14 747	-26 634	104 508	765	1 189 939

— nil or rounded to zero (including null cells)

- (a) Estimates differ from those in table 30.17 due to compilation at different points in time.
- (b) Assets include claims of Australian direct investment enterprises on direct investors abroad, which are classified as part of direct investment in Australia.

(c) Liabilities include liabilities of Australian direct investors to direct investment enterprises abroad, which are classified as part of direct investment abroad.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

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