

A framework for measuring progress

To assist in selecting measures of progress it is often useful to use some sort of framework to sketch out the territory one is trying to measure. Frameworks are a tool to support statistical measurement, data analysis and analytical commentary.

Frameworks have two main purposes.

At one level, frameworks can break the world into manageable pieces by providing a map of the conceptual terrain surrounding an area of interest. In other words frameworks can define the scope of an enquiry, delineate the important concepts associated with a topic and organise these into a logical structure. Rather than asking 'how should we measure progress?', one can use a framework to consider, separately, ways to measure progress in social, environmental and economic concerns. When considering progress, the choice of a view is largely a matter of convenience; the view is a tool to help choose or present areas of progress and progress indicators, but it does not have to purport to be a model of a world in which the environment, economy and society are separated. Such a framework can help in the preparation and presentation of a publication. It can also begin to set out the links between the various dimensions of progress: paid work for example is important to the economy and to people's sense of self-worth.

At another level, a framework can provide a theory of the way the world works. These frameworks also set out to demonstrate how the various aspects of progress fit together and relate to one another. Such theoretical frameworks often require value-judgements about what overall progress means. National statistical agencies are usually uncomfortable making such statements.

There is no one international framework on which everyone agrees. Some international statistical initiatives, such as the United Nations' Human Development Index (HDI), consider only a very few issues of concern common to all nations. Others use a larger number of issues. But it is unlikely that any international initiative will include all aspects that are important to any one country.

This essay describes the framework used by the ABS underpinning *Measures of Australia's Progress* (MAP). Just as there is no one view of progress, there is no single framework. We have listened to many views when developing this publication, and recognise the divergence of opinion that exists. We welcome comment and feedback from readers to assist in evolving the ideas and framework presented here.

General approach: Three key questions

This ABS framework is built around three fundamental questions.

- ◆ **Question 1:** What do we mean by progress overall?

- ◆ **Question 2:** How can we describe progress across society, the economy and the environment, and what dimensions of progress should be included?

- ◆ **Question 3:** What indicators best encapsulate progress in each dimension (noting that some desirable indicators need to be developed in the future or are too subjective for the ABS to use in the foreseeable future?)

The rest of this essay describes the ABS approach to answering these questions. It also describes the arrangement of the dimensions in this publication.

Question 1: What is 'progress'?

Throughout this publication, three principles are key when considering progress.

- ◆ First, we define progress – in its broadest sense – to be synonymous with life getting better.
- ◆ Second, progress is multidimensional. Whether or not we are progressing depends on the state of our environment, the health of our economy and a variety of areas of individual and societal wellbeing. And so measures of progress for each dimension are necessary.
- ◆ Third, any assessment of whether Australia is on balance progressing and at what rate depends on the personal evaluations that readers place on the relative importance of progress in each dimension.

With these three principles as a starting point, the ABS set out to develop a framework within which progress could be measured. This framework has been developed in consultation with a broad cross section of Australian society. It provides a basis from which the measures of progress in MAP were selected: guiding both the selection of dimensions of progress (those aspects of life seen as crucial to progress) and the statistical indicators of progress for each dimension. More detail is included in the essays *Measuring Progress – an ABS approach* and *How the progress indicators are presented*.

The three domains of progress

We noted above that progress is multidimensional. The various dimensions that comprise progress can be clustered in many ways. When developing MAP we organised our thinking across the three broad areas:

- ◆ Economic Progress
- ◆ Environmental Progress
- ◆ Social Progress

Our choice was largely a matter of convenience as a tool to help choose the dimensions to include. It does not purport to be a model of a world in which the environment, economy, and society can be separated.

We have chosen three domains of progress, and described what constitutes progress overall. But what constitutes progress in each domain?

Question 2: Progress in each domain

We have defined progress to be synonymous with life getting better. We characterise progress in each domain as follows.

- ◆ Environmental progress equates to a reduction of threats to the environment and improvements in the health of our ecosystems.
- ◆ Economic progress equates to enhancing the nation's income (broadly Australians' real per capita levels of consumption) while at least maintaining (or possibly enhancing) the national wealth that will support future consumption.
- ◆ Social progress equates to increases in the wellbeing of the population; a reduction of threats to, and increases in social cohesion; and protection and enhancement of democratic rights. (Social wellbeing is multi-dimensional and described in more detail later on).

Whether there has been progress overall will depend on each reader's own assessment of the relative importance of progress in each domain. Moreover, progress in any one domain might go hand in hand with progress in another. That is, progress in one area can reinforce progress in another: economic growth for example might provide more money for government to spend on environmental protection. But progress in one domain might also require some trade-off against progress in another: economic growth in certain sectors might create more greenhouse emissions.

We now have a broad characterisation of what progress in each domain amounts to. The next question we asked was: 'In order to assess progress, what dimensions (aspects) of each domain should be considered?'

The environment

Environmental progress equates to a reduction in threats to the environment and improvements in the health of our ecosystems.

In order to assess progress, what dimensions (aspects) of this domain should be considered?

- ◆ the quality of the natural landscape (land, water, biodiversity)
- ◆ the quality of the air and atmosphere
- ◆ the quality of oceans and estuaries

Why these dimensions are important.

The natural landscape comprises Australia's land and water and the plants and animals that rely on them. The three are inextricably linked.

Land: The condition of the soil covering Australia's land has a critical impact on our terrestrial ecosystems. Our soil resources are an important

natural asset, and their degradation is a significant concern to Australian farmers, governments and the general public.

Water is fundamental to the survival of people and other organisms. Apart from drinking water, much of our economy (agriculture in particular) relies on water. The condition of freshwater ecosystems has a critical impact on the wider environment.

Biodiversity: Our plants, animals and ecosystems bring important economic benefits, are valuable to society and are globally important. Native bushland has cultural, aesthetic and recreational importance to many Australians. Most importantly, the ways in which organisms interact with each other and their environment are important to human survival: we rely on ecosystems that function properly for clean air and water and healthy soil.

The air: Poor air quality has a range of negative impacts: it can cause health problems, damage infrastructure, reduce crop yields and harm plants and animals. Air pollution occurs both naturally and as a result of human activities. Australians consistently rank air pollution as a major environmental concern.

The atmosphere surrounding our planet plays a role in supporting life on earth, for example: oxygen is required to sustain living animals; a layer of ozone shields us from harmful ultraviolet rays from the sun; and greenhouse gases, predominantly carbon dioxide, maintain the surface temperature of the earth.

Estuaries and oceans: Our beaches, estuaries and wider marine ecosystems play an important role in Australian life. Our seas also support a vast array of life forms and many of our marine ecosystems are globally important.

Gaps?

These three dimensions encapsulate all of Australia and its ecosystems (the landscape, the seas that surround us; and the air around and above us). There do not, therefore, appear to be any conceptual gaps in this framework.

Society

Social progress involves increases in the wellbeing of the population; a reduction of threats to, and increases in social cohesion; and protection and enhancement of democratic rights.

In order to assess progress, what dimensions (aspects) of this domain should be considered?

- ◆ Health
- ◆ Education and training
- ◆ Work
- ◆ Housing
- ◆ Economic hardship
- ◆ Family, community and social cohesion
- ◆ Crime

◆ Democracy, governance and citizenship

Why these dimensions are important

Health: People hope to have a long life, free from pain, illness or disability. Good health for all brings social and economic benefits to individuals, their families and the wider community.

Education and training help people develop knowledge and skills that may be used to enhance their living standards, contribute to society and sustain and extend their cultural traditions. For an individual, educational attainment is widely seen as a key factor to a rewarding career. For the nation as a whole, having a skilled workforce is vital to supporting ongoing economic development and improvements in living conditions.

Work: Paid work is the means through which many people obtain the economic resources needed for day to day living, for themselves and their dependants, and to meet their longer-term financial needs. Having paid work contributes to a person's sense of identity and self-esteem. People's involvement in paid work also contributes to economic growth and development.

Housing provides people with shelter, security and privacy. Having a suitable place to live is fundamental to people's identity and wellbeing.

Economic hardship: Society generally accepts that people should have access to some minimum standard of consumption of goods and services. The presence of economic hardship that could preclude this minimum standard would be a societal concern.

Family, community and social cohesion: Families and communities are core structural elements in society – basic building blocks of national life. Families provide guidance on the social values underlying civil society and the care generated within the family supports the development of healthy functioning individuals. The vast range of services provided within communities by groups, clubs and charitable organisations are a crucial adjunct to support the role of the family. The quality and strength of people's relationships and bonds with others – their family, friends and the wider community – are important ingredients of the level of social cohesion. And a more cohesive society is one in which communities are strong and inclusive.

Crime takes many forms and can have a major impact on the wellbeing of victims, their families and friends, and the wider community. Those most directly affected may suffer financially, physically, psychologically and emotionally, while the fear of crime can affect people, restrict their lives in many ways, reduce levels of trust and impact on social cohesion. There are other costs as well, including the provision of law enforcement services and corrective services. Although government agencies take on the major responsibility for law enforcement, many businesses and householders also bear costs in protecting against or paying for the consequences of crime. A reduction in the

Inequality and Multiple Disadvantage

Inequality is one aspect of social progress that is not measured directly by these indicators.

Many people believe that the level of inequality in a society is a measure of its cohesiveness and that levels of disparity of opportunity in a society can be a threat to social cohesion. But many also recognise that the differences in reward for effort (which result in differences in material wellbeing across society) are an important, perhaps necessary, incentive in a western economy. And so it is very difficult to discuss progress in this area without making a value judgement about the level of inequality that may threaten social cohesion versus that needed to create incentive. An indicator based on changes in income distribution, for example, is unlikely to have unambiguously good and bad directions of movement upon which virtually all would agree (one of the criteria for MAP's headline indicators).

That said, information on the distribution of resources is included in MAP. Measures of the change in distribution of income, wealth and so on do not feature in the set of headline indicators, although some discussion about their distribution appears in relevant chapters. However, information indicating changes in the risk of economic hardship is included as a headline dimension.

Also, in the 2004 edition of MAP, multiple disadvantage in Australia was considered in an essay considering the a number of headline indicators side by side – health, income, education, work and housing. In particular we looked at patterns of different types of disadvantage among various population subgroups. No attempt was made, however, to describe progress in this area.

incidence of crime is linked to greater social cohesion.

Democracy, governance and citizenship:

National life is influenced, not just by material qualities such as economic output, health and education, but also by many intangible qualities such as the quality of our public life, the fairness of our society, the health of our democracy and the extent to which the citizens of Australia participate actively in their communities or cooperate with one another.

Good, effective public governance helps to strengthen democracy and human rights, promote economic prosperity and social cohesion, reduce poverty, enhance environmental protection and the sustainable use of natural resources, and deepen confidence in government and public administration.

Gaps?

There are many different frameworks for assessing progress and wellbeing in this area. The ABS has a well-developed framework for measuring social wellbeing (*Measuring Wellbeing, cat. no. 4160.0*). And these dimensions of social wellbeing are all covered in MAP. In addition to these eight headline dimensions, one supplementary dimension, *Culture and leisure*, is also considered.

The economy

Economic progress equates to enhancing Australia's national income (broadly Australians' real per capita levels of consumption) while at least maintaining (or possibly enhancing) the national wealth that will support future consumption.

In order to assess progress, what dimensions (aspects) of this domain should be considered?

- ◆ National wealth
- ◆ National income
- ◆ Productivity

Why these dimensions are important

National wealth: Along with the skills of the work force, a nation's wealth has a major effect on its capacity to generate income. Some produced assets (such as machinery and equipment) are used in income-generating economic activity. Some natural assets (such as minerals and native timber) generate income at the time of their extraction or harvest. Holdings of financial assets with the rest of the world (such as foreign shares, deposits and loans) return income flows to Australia. Other assets, such as owner-occupied dwellings, provide consumption services direct to their owners.

National income, reflects Australians' capacity to purchase goods and services, and is a key indicator of material living standards. It is also important for other aspects of progress. Not all income is spent on the current consumption of goods and services. Income that is saved can be used to accumulate wealth in the form of, say, houses, machinery or financial assets. These assets can directly satisfy individual and societal needs, or can generate future income and support future consumption.

Productivity: A nation's productivity is the volume of goods and services it produces (its output) for a given volume of inputs (such as labour and capital). The amount by which output growth exceeds input growth is the productivity improvement. Productivity is an important measure of economic progress and helps link changes in national income with changes in national wealth. Improvements in productivity mean the economy is using resources (capital, labour, energy or materials) more efficiently.

Gaps?

The System of National Accounts is a well developed framework for considering the workings of the economy. National income and wealth consolidate, respectively, economic stocks and flows. Productivity measures how efficiently economic inputs are used to generate income. Together, these three headline dimensions account for the key aspects of economic progress. Supplementary dimensions of *Transport, Communication, Competitiveness and openness,* and *Inflation* are also considered. Information on knowledge and innovation is included in the *Productivity* dimension.

Now that Questions 1 and 2 have been answered, we have an understanding of progress in each domain and the dimensions of progress that should be measured. But which statistical indicators should we use to measure progress in each dimension?

Question 3: What indicators could most effectively be used to assess progress related to these dimensions?

For each dimension we discuss a conceptually ideal indicator and the best available proxy.

The environment

The natural landscape: An ideal indicator might consider all Australian biodiversity – the diversity and abundance of micro-organisms, plants and animals, the genes they contain and the ecosystems of which they form a part. Such a measure would reflect changes in the health of Australia's ecosystems including our land and water. But to measure change as comprehensively as this would be difficult, if not impossible. Instead we use a suite of indicators to discuss progress in three key components of the landscape: land, water and biodiversity.

- ◆ **Biodiversity:** We use two headline indicators: change in the conservation status of one small component of faunal biodiversity: mammals and birds; and the clearance of native vegetation, itself a direct measure of the loss of floral biodiversity as well as a key threat to Australia's terrestrial biodiversity.
 - ◆ The number of endangered birds and mammals: This indicator ignores the vast majority of biological diversity. And changes to the list of threatened species should be treated cautiously. Species can be removed or added because of improved knowledge, not because they became more or less endangered. But over time, if the numbers of species that are threatened increase substantially there is reason to believe that certain species are declining.
 - ◆ Land clearing: Ideally, the headline indicator would consider the area of native vegetation cover in Australia. Such an indicator would require a weighted measure of the extent and intensities of land clearance and modification: apart from the practical difficulties of putting weights on different types of clearance, few accurate time series data are currently available. For the time being, estimates from the National Greenhouse Gas Inventory (NGGI) are used. These estimates do not include all land clearance, but include the majority of intensive clearance of native vegetation.
- ◆ **Land:** Ideally, the headline indicator would measure the land area affected by different types of degradation, and perhaps place a

dollar value on the cost of degradation to agriculture, infrastructure and the environment. It might also measure whether the ways we use the land that lead to degradation are continuing. But many forms of degradation overlap one another, and there is no single measure of the area of degraded land in Australia. We focus here on dryland salinity, a widespread form of soil degradation, the impacts of which are wider than lost agricultural production and include damage to water resources, biodiversity, pipelines, houses and roads. It is linked to other forms of degradation such as soil erosion, is expensive to rectify and adversely affects agricultural or pastoral yields.

- ◆ **Water:** Ideally the headline indicator would consider the health of Australia's freshwater ecosystems. Changes in the quantity and quality of all surface and groundwater would be measured, together with impacts from factors such as invasive species and changes to river flow. But such data are unavailable for much of the country, so we focus on water use, and consider the proportion of Australia's water management areas within which water extraction is thought to be sustainable.

The air and atmosphere: An ideal indicator might encapsulate how both the quality of the air and the atmosphere is changing over time. But the factors impacting on local air quality and those which impact on the atmosphere more broadly are very different and so we consider these issues separately.

- ◆ **Air:** Air quality has direct impacts on human health and enjoyment of life, and is particularly an issue in urban areas. Ideally, a headline indicator would encapsulate all aspects of air quality, but pollution takes many forms and there is, as yet, no agreed way in which different pollutants could be combined into just one measure. Therefore we focus on urban air quality expressed as the concentration of fine particle pollutants in the atmosphere, a form of air pollution about which many health experts in Australia are most concerned.
- ◆ **The atmosphere:** The atmosphere is an essential component of all ecological systems on Earth. Global warming and climate change are potential threats to biodiversity and to all ecosystems, economies and societies. Ideally, the headline indicator would assess Australia's total greenhouse emissions. But it is difficult to measure emissions from some sources accurately, especially emissions from land clearing and agriculture. The headline indicator looks at Australia's net emissions (including those from land use change).

Oceans and estuaries: A wide range of environmental concerns are associated with our oceans and estuaries. It is difficult to conceive of a single headline indicator that might measure the

health of our marine ecosystems other than some measure of the total biodiversity within them. We present a range of information about this dimension of progress but there is no headline indicator.

Society

Health: An indicator describing how long Australians live while simultaneously taking into account the full burden of illness and disability, would be a desirable summary measure of progress. But although such indicators have been developed they are not available as a time series. Life expectancy at birth is one of the most widely used indicators of population health. It focuses on length of life rather than its quality, but it usefully summarises the health of the population.

Education and training: An indicator that recognised the sum of all knowledge and skills held by people might be ideal, but is not available. The indicators of educational progress used here measure the attainment of formal non-school qualifications, and the levels of participation in education and training. The headline indicator is the proportion of the population aged 25–64 years with a vocational or higher education qualification. The age range selected identifies an age group where most people have completed any initial non-school qualifications.

Work: Many aspects of work affect people's wellbeing, such as hours worked, job satisfaction and security, levels of remuneration, opportunity for self-development, and interaction with people outside of home. An ideal indicator of progress would reflect these and other aspects of work to measure the extent to which Australians' work preferences are satisfied. While a single indicator covering all these aspects is not available, useful indicators of progress may be obtained by looking at the extent to which people's aspirations for wanting work, or more work, are unsatisfied. The official unemployment rate is a widely used measure of underutilised labour resources in the economy, and one that relates to both the economic and social aspects of work.

Housing: An ideal indicator might measure people's access to decent, affordable housing. But there is no single headline indicator to show whether housing circumstances have been getting better or worse. No such current data are available and so we discuss the importance of this dimension without using a headline indicator.

Economic hardship. An ideal indicator would identify changes in the extent to which people fall below minimum living standards, and the numbers of people that fall below. The problems of definition aside, measurement is difficult because it requires information about people's living standards. Such data are not available. The headline indicator focuses on changes in the average disposable (after tax) income of households close to the bottom of the income distribution. People in economic hardship are likely to have relatively low income and low

wealth. The headline indicator provides no information about the number of people living in economic hardship. But it does provide information about how the income of those in hardship is likely to be changing.

Family, community and social cohesion are important aspects of society, but the way in which they contribute to progress is difficult to define and measure. Rather than present a headline indicator, we present some measures relevant to this dimension, structured around types of networks: bonding, bridging and linking.

- ◆ Bonding – Families and family functioning: We present background information on family formation and dissolution and the caring role of families, as well as children without an employed parent.
- ◆ Bonding – Contact with friends and families: Contact with friends or family and greater participation in social activity build social cohesion through the reinforcement of bonding.
- ◆ Bridging and linking – Participation that occurs within the more formal social networks in the community: We discuss a range of information on aspects of progress including levels of volunteering and charitable donations, and cultural diversity and participation.
- ◆ Breakdown of social cohesion – homelessness, drug deaths and suicide – which reflect in part a lack of community support, are covered here.

Crime: Measuring the full cost of crime might provide an ideal single measure of progress in this area. But there is no well established means of doing this nor are there comprehensive data sources. Another way, albeit limited, of measuring progress in this dimension is to look at criminal offence victimisation rates. We focus on personal and household crimes.

Democracy, governance and citizenship: Although people agree democracy is important, there is less agreement about how to measure progress in the strength and quality of our democracy. In theory democratic government has been characterised as having two underlying principles: popular control over public decision making and decision makers; and equality between citizens in the exercise of that decision making. However, the strength and health of our democracy in practice is the product of many factors, not just the effectiveness of political institutions like Parliament, fair elections, an independent judiciary, equal laws and a free press.

Also important are the trust that citizens have in government and public institutions, and the degree to which they participate in civic and community life and they value and understand their rights and duties as citizens.

Democracy is not an uncontroversial subject (even if widely supported in principle) and there may be

many different views about the choice of indicators necessary to measure progress in this dimension. There are many possible indicators that relate to governance, democracy and citizenship but aspects that are measured include: voter turnout and invalid voting, the proportion of Australian residents who are citizens, participation in civic groups and organisations, women in decision-making positions, environmental citizenship, and Indigenous participation in democracy and governance.

The economy

National wealth: Our measure of national wealth would ideally have a comprehensive coverage of real net worth (i.e. the value of Australia's assets less the value of Australia's liabilities to the rest of the world). Assets would include all financial and non-financial assets over which ownership rights can be enforced and from which economic benefits can be derived by owners holding or using them.

The measure used in MAP excludes some assets which might ideally be embraced by this comprehensive definition (such as human capital and consumer durables) owing to measurement difficulties or to our decision to conform with the 'asset boundary' concept used in the Australian national accounts. A future wealth measure might include some of these further assets.

National income: Our measure of national income would ideally have a comprehensive coverage of real net disposable income (i.e. the amount that Australians can consume in aggregate, without reducing real national wealth).

The measure used in MAP embodies only some of the adjustments for the depreciation of wealth that should ideally be made. It is adjusted for the depreciation of machinery, buildings and other produced capital used in the production process, but not for the consumption of environmental assets for example. National income does not take account of some non-market activities (such as unpaid household work) that contribute to material living standards.

Productivity: Our measure of national productivity would ideally be derived from a comprehensive measure of output divided by a comprehensive measure of input. The measure used in MAP is not as comprehensive as this ideal measure. The numerator includes only the output of the 'market sector'; and the denominator includes only labour and capital inputs (not 'intermediate inputs' such as materials, services and energy used in the production process). A future productivity measure might have broader scope.

Presentation of the dimensions

While we have used the three domains of progress to organise our thinking around dimensions and help identify progress indicators, the presentation used in this publication groups the dimensions of progress into four broad areas of progress as follows:

Individuals

- ◆ Health
- ◆ Education and training
- ◆ Work
- ◆ Culture and leisure

The economy and economic resources

- ◆ National income
- ◆ Economic hardship
- ◆ National wealth
- ◆ Housing
- ◆ Productivity
- ◆ Competitiveness and openness
- ◆ Inflation

The environment

- ◆ The natural landscape
- ◆ The air and atmosphere
- ◆ Oceans and estuaries

Living together

- ◆ Family, community and social cohesion
- ◆ Crime
- ◆ Communication
- ◆ Transport
- ◆ Democracy, governance and citizenship

The area of progress relating to the *Environment* corresponds to the *Environment* domain of progress – the dimensions of progress are the same. However, the area relating to the *Economy and economic resources* includes selected dimensions from both the *Society* and *Economy* domains. Similarly, the area relating to *Living together* brings together selected dimensions from both those two domains. The area of progress relating to *Individuals* contains a subset of the dimensions identified in the *Society* domain.

There are many alternative ways in which the dimensions of progress could be drawn together. The approach used here is intended to assist the reader in assessing progress, both across and within broad areas of individual and national life.