

Eckersley, R. 1998, Perspectives on progress: Economic growth, quality of life and ecological sustainability. In Eckersley, R. (ed) 1998, *Measuring Progress: Is life getting better?*, CSIRO Publishing, Collingwood, Victoria, pp.3-34.

**PERSPECTIVES ON PROGRESS:**

**ECONOMIC GROWTH, QUALITY OF LIFE AND**

**ECOLOGICAL SUSTAINABILITY**

**Richard Eckersley**

**CSIRO Wildlife and Ecology**

**SUMMARY**

This paper explores the concept of progress, of how we make life better. It looks especially at the relationships between economic growth, quality of life and ecological sustainability.

The paper draws on three streams of research and analysis: (1) public perceptions of life satisfaction, quality of life and the future, (2) the nature of progress and the development of new measures of progress; and (3) the 'story' of Australia as revealed by six indicators that describe aspects of economic, social and environmental change over the past 100-150 years.

The many terms used to discuss progress can, broadly speaking, be grouped into two clusters. The first focuses on the economic, and includes economic growth, standard of living, economic welfare, affluence and material well-being. The second puts more emphasis on the social and environmental, and includes ecological sustainability, quality of life, equity and a broader meaning of well-being that encompasses physical, mental, social and spiritual dimensions.

We could say the first cluster of terms describes *material progress*, and the second *sustainable development*. However, the relationships between the terms and between the two clusters are not clear-cut, immutable or absolute. For example, improvement in material well-being need not require economic growth; economic growth may improve quality of life in some circumstances but not others; and sustainable

development could involve economic growth, but of a different sort from the growth we have today. Another key feature of progress, technological innovation, drives economic growth, but will be as important to sustainable development.

In Australia and other developed nations, we have defined progress in mainly material terms and measured it in terms of a rising per capita GDP (Gross Domestic Product). The equation of more with better - of standard of living with quality of life - is coming under critical scrutiny in the research literature, but remains largely unquestioned in mainstream public and political debate. At best, the issue is dealt with in a fragmented fashion. The fundamental assumptions about the relationships between economic growth, quality of life and ecological sustainability are rarely highlighted or explored.

The rationale for economic growth seems flawed in several important respects: (1) it reflects too narrow a view of human well-being, and fails to explain why, after 50 years of rapid growth, so many people today appear to believe life is getting worse; (2) it overestimates the extent to which past improvements in material well-being are attributable to growth; and (3) it underestimates the gulf between the magnitude of the environmental challenges we face and the scale of our responses to them.

There is evidence that the developed world has passed a threshold, a point beyond which economic growth (as currently defined and derived) ceases to improve quality of life. New indicators that adjust GDP for social and environmental factors suggest the trends in GDP and national well-being, once moving together, are now diverging. Sustainable development offers an alternative to conventional growth as a path of progress, but exactly what it means and how it can be achieved remain unclear.

The crux of the debate about progress is the direction of change. Will we improve the quality and sustainability of life by continuing on our present path of progress - increasing average wealth to give the average consumer greater choice? Or do we need to find a new path that leads in a different direction, towards new personal and social goals? Both expert analysis and public opinion suggest the need to canvass more openly the possibility and feasibility of new directions.

Policy debate needs to be linked to a wider cultural debate - a discussion of values, priorities and worldviews to provide a new framework within which the more detailed policy issues can be decided. The policy shifts necessary to achieve a high, equitable and sustainable quality of life will not occur in the absence of a deep cultural change.

The issue of contention in the debate about progress is not growth versus no-growth. That growth is better than recession in generating jobs - the main political justification for promoting growth - is insufficient reason for not looking much more closely at *what* is growing, what *other effects* this growth is having, and what *alternatives* might exist. We need to examine more critically the whole basis on which progress is currently defined, measured and achieved.

To suggest this is not necessarily to be *anti* the economy, business or technological innovation; it is to argue that these activities need to be driven by different values towards different ends.

## **INTRODUCTION**

### **The ultimate question**

Is life getting better?

The question may seem so broad as to be unanswerable, even meaningless. Yet it reflects a coherence in our lives that needs greater acknowledgment. And how we answer the question bears on almost every issue on the public and political agenda. However, our issue-based public discourse, crowded by single-interest groups clamouring for attention, and the highly specialised nature of research and scholarship have, up to now, ensured the question is rarely asked, let alone explored or answered.

A central tenet of modern Western culture is the belief in progress, the belief that life should get better - healthier, wealthier, happier, more satisfying and interesting. Is this the case? If our answer is 'yes', then we can continue to assume that human history (or more accurately, Western civilisation) is on the right trajectory, and all that are required are periodic course corrections - the task governments engage in.

If the answer is 'no', then the most fundamental assumptions about our way of life need re-assessing, assumptions that have long been broadly agreed and taken for granted. The task we face goes far beyond the adjustment of policy levers by government. It means we ought to be having a more open and spirited debate about how we are to live and what matters in our lives.

The question is difficult to answer objectively on the basis on current trends, patterns and prospects. Every relevant issue is contested; experts continue to argue over whether our future - the future we are creating through our past and present choices and decisions - will be bleak or rosy, nationally and globally. There are pessimists and optimists about economic prospects, the state of the environment, population carrying capacity, technological change, social justice and equity, war and peace.

Some commentators believe that if we are resolute and continue on our present path of economic and technological development, humanity can overcome the obstacles and threats it faces and enter a new golden age of peace, prosperity and happiness. Others foresee an accelerating deterioration in the human condition leading to a major perturbation or discontinuity in human history, even the extinction of our species (along with many others).

One reason we remain divided on the question is that the data are incomplete, or open to differing interpretations. We lack a good understanding of what constitutes 'a better life'; we do not have good measures, or indicators, of many aspects of life. Furthermore, most analysts view the question through the prism of their particular expertise, giving a distorted or incomplete picture. To the economist, we are consumers making rational choices to maximise our utility, or personal satisfaction; to the ecologist, we are one of millions of species whose existence depends on our interactions with other species and our physical environment.

However, the issue goes deeper than this. Essentially, we are seeing a clash of paradigms, a confrontation between beliefs that are fiercely held and between worldviews to which people are deeply committed. Increasingly, the paradigm of *progress* is being challenged by that of *transformation*: the conviction that we are still ‘on track’ to a better future by the conviction that we are now straying ever further off it; the view that economic, social and environmental problems are ‘glitches’ we can iron out of the system by the view that the problems are systemic and require whole-system change.

Thus the question is one about which it is impossible to be wholly dispassionate or objective. It is also so broad as to be beyond the expert grasp of any one individual. Any discussion of the question must be partial - in both senses of the word.

### **Aspects of progress**

This paper explores, from different perspectives, some of the many issues raised by the question, ‘Is life getting better?’. The exploration extends from the personal to the global scale, and ranges over subjects such as happiness and satisfaction with life, health and well-being, economic growth, the environment and sustainable development. There is a large and growing literature on all these subjects, and the coverage will inevitably be incomplete.

The paper is divided into several sections:

- ***Public opinion*** - looks at what public-opinion surveys reveal about Australians’ happiness and satisfaction with life, and their views on the state of Australian society, quality of life and the future.
- ***Measuring progress*** - considers the relationships between economic growth, quality of life and sustainability, focusing especially on the role of indicators. It discusses the concept of sustainable development and trends in indicators of well-being and sustainability, and whether a high and sustainable quality of life requires a paradigm shift in our thinking about progress.
- ***An indicators story of Australia*** - examines what six ‘macro’ indicators - per capita GDP, life expectancy, unemployment, per capita energy consumption, area of land cleared for grazing and agriculture, and population - reveal about Australia’s development over the past 100-150 years.
- ***Conclusion*** - draws together the evidence to argue the need for a more open and critical debate on the ends and means of progress.

The discussion revolves around a number of key terms:

- *Progress* is improvement, betterment, advancement, development. In modern industrial societies, we tend to define ‘progress’ in terms of a rising *standard of living*. Standard of living refers to *material well-being*, which relates to produced goods and services. So what we usually call ‘progress’ is better understood as *material progress*. While it is more than monetary wealth, material progress is

usually measured in monetary terms. Thus material progress is often equated with *economic growth*, or growth in per capita *Gross Domestic Product* (GDP), a measure of national economic activity over a year. *Technological innovation* is a major contributor to growth and, more broadly, to material progress.

- *Quality of life* is a broader term than standard of living and relates to *total well-being*, not just material well-being. Well-being, or *welfare*, refers to the condition or state of being well, contented and satisfied with life. Increasingly, *health* is being defined in terms of well-being rather than just the absence of disease or infirmity. Well-being (and so quality of life) has several components, including *physical, mental, social* and *spiritual*. Well-being and quality of life are also used in a collective sense to describe how well a society satisfies people's wants and needs. *A better life*, in the context of this paper, means a higher quality of life, not just higher material living standards.
- *Sustainability* refers to the ability to continue an activity or maintain a certain condition indefinitely. It is most commonly used today in considering the environmental impacts of human activities, including resource depletion and pollution, but it can be applied to economic and social systems, as well as ecological. *Sustainable development* has become a widely accepted term to describe the goal of achieving a high, equitable and sustainable quality of life by integrating into a single conceptual framework the social, economic and environmental activities, outcomes and impacts of human society.

## **PUBLIC OPINION**

One obvious way to answer the question, *Is life getting better?*, is to ask people. It is usually the case that the answer you get to a question depends on how it is asked, and so it is with questions about whether people are happy or satisfied and what they think of life and the future. Asking people about their personal circumstances or prospects usually elicits a very different response from asking about life and the future in broader, social terms.

### **Perceptions of life**

The vast majority of people are happy with their lives and personally optimistic about their future - or at least say they are. This has been discovered in surveys both here and abroad. For example, a 1997 AMR: Quantum Harris survey found 86% of Australians said that, overall, they were very or somewhat satisfied with their 'life today' (39% said they very satisfied) (Don Porritt, AMR: Quantum Harris, *pers com*). Even the majority of the unemployed say they are satisfied. In an unpublished 1988 Commission for the Future survey, 80% of Australians (aged 14 and over) said they were optimistic or hopeful about their personal future; only 18% were pessimistic or concerned.

On the other hand, many surveys over the past decade show that Australians are concerned about the state of Australian society and its future. As part of the *Measuring National Progress* Conference, CSIRO Wildlife and Ecology (1997) commissioned a poll of public perceptions of overall quality of life, taking into

account social, economic and environmental conditions and trends. The national survey of 1200 people aged 18 and over found that 52% believed life in Australia was getting worse, with only 13% believing it is getting better. A third (33%) said quality of life was staying about the same.

A quarter (26%) said life was getting 'a lot worse', while 27% said it was getting 'a little worse'. Only 3% said they thought life was getting 'a lot better', while 10% said 'a little better'. Those on high incomes were more positive than those on low, those aged under 35 more positive than those over 35, city people more positive than country people, and men (slightly) more positive than women. However, the differences are mostly not large; in fact the overall pattern is remarkably consistent across different groups (see Table 1).

*[Insert table 1 about here]*

The 1988 Commission for the Future survey on attitudes to change and the future found that most Australians felt that, in many respects, life had become worse over the past 20 years. More expected the quality of life in Australia to be worse early next century than believed it would be better. More than half had an essentially pessimistic view of the future of the world. Thus, only 44% said they were optimistic about the future of humanity, while 53% were pessimistic. Optimism appears to decline further if the question is not framed in terms of a direct contrast in attitudes (optimistic/pessimistic, better/worse etc). When respondents were asked an open question about their feelings about the future of the world and their responses grouped, only 28% expressed positive feelings, while 63% expressed negative and 16% ambivalent feelings (the total exceeds 100% because more than one response was allowed).

A report by the Clemenger/BBDO Group, *The silent majority - the everyday problems of the average Australian* (1997) - the third in a series which began in 1977 - documents "the distress of a nation divided, deeply anxious about its children and its future". "The trivial problems that beset Australians twenty years ago in the first Silent Majority study - the length of the cord on electrical appliances or the short life span of school textbooks - have disappeared. In their place are concerns about perceived inequities in the delivery of welfare, the behaviour of the mass media, the operation of the criminal justice system and the betrayal of trust by community leaders." Many other surveys over the past decade have yielded similar findings of public discontent and disillusion (Eckersley 1996a).

A recent international survey of more than 37,000 people in 40 countries found Asia was the only region of the world where more people were optimistic than pessimistic about the future (*The Age*, 1995). A global survey of teenagers (The BrainWaves Group 1996; Attwood 1996) found that, on average, only 30% thought the world would improve in their lifetime; in Australia the proportion was 24%.

The wording of questions, then, is crucial. In particular, asking about personal states and circumstances elicits a more positive response than asking about general conditions and prospects. Possible explanations for the differences include that:

personal happiness and hopefulness are largely unrelated to our circumstances; we are reluctant to admit to unhappiness or pessimism about our own lives because to do so is to admit to being a loser; our wider worldview includes many elements that are not part of the personal experience of most of us (such as wars, environmental destruction, poverty and serious crime); this worldview is distorted by media representations that emphasise the negative; we may tend, in this broader view, to take for granted past improvements, and focus instead on aspects of life we believe have deteriorated, or at least have not improved or met our expectations; and our culture is dominated by dystopian, rather than utopian, images of the future.

Of these explanations, the most important may be the nature of personal happiness and life satisfaction - in particular, its relative independence of external circumstances and changes in these (Headey and Wearing 1992, Myers and Diener 1996, Hamer 1996). Wealth is a poor predictor of happiness, as is age, gender and ethnicity. People who win the lottery are no happier a year after the event than they were before. People have not become happier as their societies have become richer: although Americans on average earn twice as much in real terms as they did in 1957, the proportion saying they are 'very happy' has remained relatively constant, with one poll series even showing a decline from 35 to 29% (Myers and Diener 1996).

Even the very rich are only slightly happier than the average citizen, and those whose incomes have increased over a ten-year period are no happier than those whose incomes have not. In most countries, the correlation between income and happiness is negligible; only in the poorest countries is income a good measure of well-being. In general people in rich countries appear to be happier than those in poorer countries, but the margin may be slim, and based on factors other than wealth.

These findings raise an interesting question about why we are so intent on becoming richer. It also means surveys of personal well-being are of little help in assessing whether overall quality of life is rising or falling. However, the whole basis on which people evaluate their personal and social situation - how, for example, they arrive at a decision about whether life is getting better or worse - warrants more research.

The public mood about the state of Australian society defies the proclaimed good news about our economic performance and prospects. Despite this, most social and political commentators have attempted to explain the public's disillusion largely in terms of economic factors. These include factors that faster growth might be expected to rectify - for example, high unemployment and falling real wages for a substantial proportion of the workforce. The rate of social and economic change is another frequently cited factor.

However, the evidence suggests the basis for people's discontent is both broader and deeper, and embraces issues that are linked directly or indirectly to growth and the values and priorities that underpin it. These include perceived social instability and division and environmental degradation, and even the unrelenting pressure to meet the ever-higher material and personal expectations promoted by modern Western culture.

The belief that material progress equates with a better life is so ingrained in our culture that most commentators tend to overlook the importance of other factors - in particular, the personal, social and spiritual relationships that give our lives a moral texture and a sense of meaning - of self-worth, belonging, identity, purpose and hope. In their book, *Understanding happiness*, Headey and Wearing (1992) note that: “A sense of meaning and purpose is the single attitude most strongly associated with life satisfaction.”

The widespread perception that things are getting worse at the social or national level is significant, regardless of whether it is ‘factually’ or ‘objectively’ true. The resulting erosion of faith in our society and its future influences the way we see our roles and responsibilities, and our relationship to social institutions, especially government. It denies us a social ideal to believe in - something to convince us to subordinate our own individual interests to a higher social goal - and a wider framework of meaning. The consequences are perhaps most serious for young people who, in negotiating the often difficult transition to adulthood, are establishing their identities, beliefs and place in society.

### **Public trust and preferred futures**

Faith or trust in society, social institutions and others is one specific measure of people’s perceptions of whether life is getting better. The evidence suggests public trust is declining. Over the 21 years from 1976 to 1997, the Morgan poll shows a fall in the proportion of people rating a range of occupations as high or very high for ethics and honesty (The Bulletin Morgan Poll 1996, 1997). For the 14 occupations for which 21-year data are given, the rating fell from an average of 35% to 30%. Those at the top - doctors, school teachers and dentists - have improved their rating, although they all showed a drop in the last year. But for most of those who wield financial and political power and influence - politicians, lawyers, business executives, bank managers and (newspaper) journalists - public trust has fallen dramatically - from an average of 31% to 17% (see Table 2).

*[Insert table 2 about here]*

Australians’ shifting perceptions about progress is also evident in research into people’s preferred futures. A 1996 study of young Australian’s expected and preferred futures for Australia in 2010 found young people’s hopes for Australia were not only very different from their expectations, but also different from what they are promised under current priorities (ASTEC 1996; Eckersley 1996b). Their dreams for Australia are of a society that places less emphasis on the individual, competition and material wealth, and more on community and family, cooperation and the environment. Some expressed their wishes in terms of a greater recognition of the ‘natural’, ‘human’ or ‘spiritual’ aspects of life.

For example, asked to nominate which of two *positive* scenarios for Australia for 2010 came closer to the type of society they both expected and preferred, almost two thirds said they expected “a fast-paced, internationally competitive society, with the emphasis on the individual, wealth generation and enjoying the ‘good life’”. However eight in ten said they would prefer “a ‘greener’, more stable society, where

the emphasis is on cooperation, community and family, more equal distribution of wealth, and greater economic self-sufficiency”.

In a similar vein, Mackay (1995) says that in response to feelings of instability, insecurity and uncertainty as Australian society is reformed and redefined, Australians harbour certain dreams: the ‘urban village’, where people know and care for each other; ‘happy families’, because when families are in disarray, society suffers; ‘shared values’, to help create a more cohesive sense of community; and more jobs, for anyone who wants one.

Mackay (1997), says that his research reveals growing community concern about the gap between our values and the way we live. We crave greater simplicity in our lives, yet continue to complicate them. We would like to be less materialistic, but seem to acquire more and more. What seems to be lacking, he says, is “ a ‘guiding story’ that connects leaders and people: a set of coherent values and beliefs, imaginatively couched, that gives us a framework for making sense of our lives and, indeed, for taking more confident steps towards control of our destiny.”

In the past, the quest for material progress and prosperity provided much of that ‘guiding story’. It seems it no longer does.

## **MEASURING PROGRESS**

Measurements pervade our lives - from our salary to our height and weight; from the weekend sports results to the weekday fluctuations in the All Ordinaries Index; from the dominating influence of GDP on economic policy to the portents of the Southern Oscillation Index for our weather. Measures, or *indicators*, of our situation and performance range from the personal to the global, and span economic, social and environmental aspects of life.

Indicators are generally designed to make complex phenomena or conditions quantifiable, perceptible and understandable. In other words, they simplify, measure and communicate trends and events. A more technical definition is that an indicator is ‘a statistic or parameter that, if tracked over time, provides information on changes in the condition of a phenomenon, which has significance extending beyond the properties of the statistic itself’. The accuracy, validity and comprehensiveness of indicators are important because they influence community attitudes and perceptions and political priorities. They are the main means of getting feedback on what is happening in society, the economy and the environment. Inaccurate or misleading indicators can create a distorted picture of what is happening and so lead to poor policy. Good indicators are a prerequisite for good policy.

In modern societies like Australia, economic indicators are the most powerful determinants of public and political perceptions of national performance. And the most potent of these is Gross Domestic Product, or GDP, the value of all final goods and services produced within a nation (a similar measure is Gross National Product, or GNP, which is GDP adjusted for income paid or received from abroad). Per capita GDP is widely used as a measure of how well we are doing as individuals and as a

nation relative to the past and to other countries. Growth in GDP (or more accurately, in real GDP per capita) is often regarded as a measure of progress.

Yet GDP was never intended as a general measure of economic welfare, let alone quality of life. (Economics is concerned with material welfare and the production, distribution and consumption of goods and services - and so with more than what is bought and sold.) There is a growing recognition of the need to develop and establish a more comprehensive framework of indicators that will provide a fuller, more accurate picture of national performance and progress (eg Cobb *et al* 1995a, 1995b, Hamilton C 1997, Henderson 1997, New Economics Foundation 1997).

### **Sustainable development and its measurement**

There seems to be an important merging of two different perspectives on the issue of measuring progress. Those with an interest in social equity and justice are increasingly also incorporating an environmental dimension, while those approaching the issue from the environmental perspective are increasingly linking this to a social one. All three aspects - social, environmental and economic - are brought together in the notion of *sustainable development*. A common theme in much of this work is the perceived need to shift from *quantity* to *quality* in our way of life and our measurements - for example from 'quantitative growth' to 'qualitative development' (Max-Neef 1995).

The two key aspects of life - quality and sustainability - are indivisible in that high quality of life obviously cannot remain high if it is not also sustainable. The term 'sustainable development' acknowledges this dynamic relationship between the goals of improving well-being and ensuring that improvements are compatible with a healthy natural environment. Sustainable development, although dismissed by some as an oxymoron, has become widely accepted in the past decade, in all parts of the world and across many cultures. It represents the most significant challenge to date to economic growth as the defining process of progress.

There are some broad perceptions about what sustainable development involves, such as integrating a wide range of social, economic and environmental goals (Institute of Environmental Studies 1996a). In particular, this requires the incorporation of environmental considerations into the mainstream socio-economic policies that currently steer society. Beyond that, however, there is not much agreement. So far, a consensus on its precise meaning has proved elusive, with one recent count revealing 80 interpretations (Institute of Environmental Studies 1996a).

The World Commission on Environment and Development defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED 1987). The World Conservation Union (IUCN), the UN Environment Program and the World Wide Fund for Nature have defined sustainable development as 'improving the quality of human life while living within the carrying capacity of supporting ecosystems' (IUCN *et al* 1991).

The most appropriate way of integrating social, economic and environmental considerations into a single indicators framework has become the subject of a growing international debate. However, as a briefing paper for a major conference on *Tracking Progress*, held in Sydney in 1996, notes: “Whilst there is a wealth of options for incorporating the environment into policy, there is a definite lack of consensus on approaches and methodologies. What we need are standardised frameworks which have the capacity to influence policy decisions at the local through to international scale. Balancing the development goals of society requires accurate information on the cost, benefits and effects of all policy options at all levels” (Institute of Environmental Studies 1996a).

A summary of key issues that emerged from the conference notes that there was much debate and confusion about the meaning and use of indicators (Institute of Environmental Studies 1996b). The summary also comments that: “Some felt that there was this continual underlying issue of the inappropriateness of the current economic paradigm. There was particular tension between needing to quantify environmental and social issues so that they can be incorporated into the bottom line, and the impossibilities/ inappropriateness of quantification.”

Nix (1996), one of the conference speakers, deplored the growth of what he called the “indicators industry”, saying he believes the current search for indicators is “naive, ill-founded, costly and potentially dangerous”. “Yes, we do need robust environmental indicators, but these should be emergent from a deep understanding of complex system function and not through consensus by committee.”

Bradbury (1996) was even more critical, describing indicators as “voodoo science”. He told the conference: “Indicators, despite their popularity, are the consequences of an approach to understanding the complexity of the world which is fundamentally flawed. They are wrong because they are a pathological corruption of the reductionist approach to science.” Bradbury said it was time to come out of the “cold, shadow world” of indicators, and “to learn to approach the complexity, the richness of the world with theory, data, models and tools which honour that richness instead of subverting it, which acknowledge that complexity instead of denying it.”

The use of aggregated or composite indicators, such as the Index of Sustainable Economic Welfare (ISEW) and its derivative, the Genuine Progress Indicator (GPI), is a key issue in the indicators debate. The great strength of these indicators - their ability to provide a stark contrast to GDP - is also their weakness - they have the same tendency as GDP to obscure the assumptions, values and criteria that critically influence the outcome. (The aggregation aside, they are also useful in that their construction brings together time-series data on a wide range of component factors.)

Henderson (1997) is critical of the GDP/GNP analogues, saying that the UN’s statistical division, the World Bank and many national bureaus of economic analysis agree that many social and environmental statistics cannot and should not be aggregated into expanded GDP-type single indices. Yet she also acknowledges they have their role, saying the boom in new indicators, including aggregated indices, hybrids and those that are unbundled and multidisciplinary, should be welcomed as

expanding the emerging debate. “The polemical trade-off is difficult: a single index will gain more media coverage - but at the cost of obfuscation, since no-one can unpack all of the arcane assumptions behind it.”

The Australian Bureau of Statistics shares these doubts about the value of composite indicators, noting that while they may be effective in capturing headlines, they are difficult to interpret accurately. It argues a better approach is to develop a set of indicators, linked by an underpinning statistical framework, the most suitable being the 19993 System of National Accounts (Trewin 1997).

Peet (1996) outlined to the *Tracking Progress* Conference a project being undertaken by an international group of scientists (the Balaton Group, the informal name of the International Network of Resource Information Centres). Their aim, he said, was not to produce a collection of indicators, but devise a framework within which indicators would make sense.

Peet said that in the group’s opinion, the real targets of sustainable development indicators have not yet been clearly identified. “We see this as in part the reflection of lack of a whole-system framework for linking all the areas involved. To us, the aim must be to envision a control system that links the separate issues of *where* resources and sinks are, and *how* they are being used, to the reasons *why* we use them. In other words, it must attempt to address the question: What is the purpose of it all? We do not see the answers to this question as self-evident, especially in mainstream political-economic theories. Further we do not think that the meaning of the terms ‘sustainability’ and ‘development’ have, in most cases, developed much beyond the stage of dreams and confidence tricks, respectively.”

The group’s purpose, Peet said, was to bring two old questions together in a new way and on a new scale: how can we run society in such a way as to provide sufficiency, security, and good lives to all people? (the ‘development’ question); and how can we live within the rules and boundaries of the biophysical environment? (the ‘sustainability’ question). “Sustainability is fundamentally a biophysical goal, closely related to survival, whereas development is primarily a social goal. While they reflect markedly different concepts, they are also related, in that development presupposes maintenance of the total biophysical environment within which life on Earth exists.”

## **Growth and well-being**

Behind the limitations and idiosyncrasies of what GDP does and does not measure and the attempts to improve on it are deeper questions about the relationship between economic activity and growth and the quality and sustainability of life. And notwithstanding the debate and uncertainty about how best we measure progress - or quality of life or sustainability - the growing volume of data and analysis in this area does shed light on the question. To what extent, then, does economic growth of the kind we are pursuing improve quality of life or constitute sustainable development?

It is important in considering this issue to make a distinction between the developing and developed world. Material progress is improving life for many people in the

developing world, whatever the doubts about its recent contributions to quality of life in developed nations. Given this, the current patterns of global economic growth seem perverse: the rich are getting richer much faster than are the poor, many of whom are getting poorer (UNDP 1996).

The Administrator of the UN Development Program, James Speth, has warned that the world has become more polarised, both between and within countries (Speth 1966). “If present trends continue, the global economy will be gargantuan in its excesses and grotesque in its inequalities. Vast inequality would be the norm and instability and violence its accompaniment.” The defining concerns of international affairs in the next century, he said, would revolve around the struggle for equity - equity among nations, within nations, between the sexes, and for future generations.

The case for continuing economic growth in already rich nations rests on the belief that this growth is continuing to enhance well-being or quality of life. This assumption underpins government policy throughout the developed world.

In these times of widespread high unemployment, Western governments and business often justify growth-promoting policies in terms of job creation. For example, the Mortimer report on government business programs, *Going for growth*, argues that, “Moving Australia from a low growth to a high growth economy, per head of population, is the single most important thing the Government can do to address the nation’s most pressing problem: high unemployment” (Review of Business Programs 1997).

However, this argument is really just the ‘political tip’ of a much broader and more fundamental rationale that economic growth makes life better for all, or most, of us. Is this the case in rich nations? Cross-national studies reveal a clear association between GDP per capita and other measures of well-being (Castles 1997, Gruen 1996). Where these comparisons are between rich and poor nations, the association is undoubtedly valid. At the levels of GDP per head found in the developed world, the link appears to become more tenuous.

In the late 1980s, Max-Neef (1995) and his colleagues undertook a study of 19 countries, both rich and poor, to assess elements and conditions that “inhibited people’s possibilities of adequately satisfying their desired personal well-being and collective welfare”. They detected among people in rich countries a growing feeling that they were part of a deteriorating system that affected them at both the personal and collective level. Max-Neef says the research led them to propose a *threshold hypothesis*, which states that for every society there seems to be a period in which economic growth (as conventionally measured) brings about an improvement in quality of life, but only up to a point - the threshold point - beyond which, if there is more economic growth, quality of life may begin to deteriorate.

Research shows that the relationship between wealth and health (measured as life expectancy) is not linear, with increase in life expectancy beginning to peter out at about US\$5000 per capita GNP (in 1990 dollars) (Wilkinson 1994). Above that, absolute standard of living ceases to have much impact on health. (Average real GDP

per capita in 1994 was \$2904 for developing countries, \$15 986 for industrial countries and \$5798 for the world [UNDP 1997].)

In the rich, developed nations, health seems to be influenced more by income distribution than by average income levels. The countries with the longest life expectancy are not the wealthiest, but those with the smallest spread of incomes and the smallest proportion of the population in relative poverty. According to Wilkinson (1994) this suggests that in these countries, “the predominant position of material factors as determinants of health has given way to social factors”.

Wilkinson says the importance to health of relative income suggests that psychosocial factors related to deprivation and disadvantage are involved. “That is to say, it is less a matter of the immediate physical effects of the inferior material conditions than of the social meanings attached to those conditions and how people feel about their circumstances and about themselves....The health data suggests that the quality of the social fabric, rather than increases in average wealth, may now be the prime determinant of the real subjective quality of human life.”

The link between income distribution and health remains contentious, and the validity of the conclusions Wilkinson draws from his data has been challenged (Saunders 1996, pp 36-58). However, more recent research tends to support his position (Smith 1996; Colin Mathers, Australian Institute of Health and Welfare, *pers com*). In commenting on this research, Smith (1996) says the studies seem to show that inequality per se is bad for national health. “The implication is that the psychological effects of being low down on the social ladder have detrimental health effects whatever the actual material conditions of life.”

Smith also notes that “the only group for which the continued fall in mortality does not survive increases in inequality is the young adults, for whom recent trends in mortality have not been favourable, particularly for residents of deprived areas”. It is the people within this age group, he says, “who die of causes which are not the outcome of long-term biological processes and which will plausibly respond rapidly to increasing social disruption.” One of the most striking examples of social deterioration in Western societies is found in rising rates among young people of psychosocial disorders such as suicide, suicidal behaviour, depression, drug abuse and crime (Eckersley 1997).

The link between the quality and sustainability of life - between human well-being and environmental health - is pervasive, and includes spiritual, cultural and aesthetic dimensions as well as physical. The physical aspect is being brought into closer focus by the analysis of the implications for human health of environmental changes, including global warming, ozone depletion, biodiversity loss, deforestation, pollution and land and water degradation and depletion. These implications range from increased conflict and natural hazards, through increases in infectious diseases and cancers, to disrupted food production.

Douglas (1997) says that while people in all parts of the world are living longer, the distribution of health is becoming increasingly uneven. “There is also growing

evidence that we are changing our environment in ways that seriously threaten the sustainability of our good health.” McMichael (1997) writes that: “...large-scale damage to global and regional natural systems may endanger the long-term sustainability of population health....We are entering what appears to be one of history’s great transitional eras - and this time, unprecedentedly, it will be played out on a global level.”

## **Growth and sustainability**

Advocates of economic growth argue it is good for the environment (Arrow *et al* 1995, Ayres 1996, WRI *et al* 1996). For example, as countries grow richer, consumer preferences and the structure of the economy change, technology becomes more efficient and cleaner, and the countries can afford to invest more in environmental improvements. The proposition has been supported by empirical evidence of an ‘inverted U’ relationship (environmental Kuznets curves) between per capita income and some measures of environmental quality. That is, environmental degradation increases with income up to a point, after which environmental quality improves with increasing income.

In late 1994, a small international group of ecologists and economists met in Sweden to consider whether an interdisciplinary consensus exists on the issue of economic growth, carrying capacity and the environment. Called the second Asko meeting, its report (Arrow *et al* 1995) states that the inverted U-shaped curves need to be interpreted cautiously. So far, they have been shown to apply only to a selected set of pollutants. These have local, short-term costs (for example, urban air and water pollution). The curves do not apply to the accumulation of stocks of waste or pollutants such as carbon dioxide which involve long-term and more dispersed costs.

The relationship is also less likely to hold for resource stocks such as soils and forests. It ignores system-wide consequences of emission reductions, such as transfers of pollutants to other countries. Finally, where emissions have declined with rising income, the reductions have been due to local institutional reforms such as environmental legislation. Where environmental costs are borne by the poor, by future generations, or by other countries, the incentives to correct the problem are likely to be weak.

The report notes that it is important to be clear about the conclusions that can be drawn from the empirical findings of the inverted U-shaped relationship between growth and the environment. “While they do indicate that economic growth may be associated with improvements in some environmental indicators, they imply neither that economic growth is sufficient to induce environmental improvement in general, nor that the environmental effects of growth may be ignored, nor, indeed, that the Earth’s resource base is capable of supporting indefinite economic growth.”

Another recent report, by the World Resources Institute, the UN Environment and Development Programs and the World Bank, also notes that “any general claim that economic growth leads to environmental improvement must be heavily qualified” (WRI *et al* 1996). Furthermore, it states that projections of environmental quality based on the inverted-U curves suggest that economic growth will worsen rather than

improve environmental conditions at the global level. “Countries containing a large majority of the world’s population will have average incomes below the estimated...turning points for some time to come. Thus, economic growth in these countries could be expected to increase pollution. Globally these projected increases would more that cancel out any reduction of pollution in more developed countries....Projections are not destiny, but such measures do serve fair warning that more vigorous efforts and policy interventions will be necessary to avoid the widespread degradation forecast by these means.”

Templet (1996) suggests there are three development phases in economic systems:

- *Developing*: characterised by rapidly increasing energy intensity (energy consumption per unit GDP), energy consumption per capita and energy throughput (total energy use); low but increasing environmental impacts; and increasing public welfare.
- *Developed*: characterised by rapidly decreasing energy intensity, but increasing energy per capita and energy throughput; high and increasing environmental impacts; and decreasing or stable public welfare.
- *Sustainable*: characterised by decreasing or stable energy intensity, energy per capita, and energy throughput; decreasing or stable environmental impacts and increasing or stable public welfare.

Templet argues that developed nations are already substantially reducing their energy intensities, and that the peak energy for transition is being lowered. For example, the US peak energy intensity occurred in 1919 at a level of about 38 megajoules/ \$GNP; the 1989 energy intensity was 15 megajoules/ \$GNP, a reduction of 60%. Switzerland and Singapore reduced their energy intensities by about 50% between 1971 and 1989, while Sweden, Japan, Germany and France reduced theirs by about 30% over this period.

Templet says energy consumption per person appears to level off at high levels of per capita GNP and that some nations such as Switzerland and Germany may now be seeing a plateau in total energy consumption. However, an important qualification of these trends, which he does not mention, may be the extent to which energy-intensive industries in developed nations are being relocated to developing nations.

Templet (1995) says that even with this trend towards stable or decreasing energy use, economic systems will become sustainable only when the energy sources are renewable, and that a reliance on such sources will require a reduction in total energy use. “A sustainable path encompasses low energy intensity, renewable energy use and stable populations and economic outputs with equitable distribution.”

Templet says that the environment’s contribution to production may not become apparent to economics until a country is highly developed and the environmental services to the economy are heavily used and begin to be economically limiting. “At this point, environmentalism may emerge as an *economic* strategy since the environment and the economy are complementary and improved environmental conditions lead to improved economies.” He argues that neoclassical economics, with

its foundations and assumptions in the pre-transition economies of the 18th and 19th centuries, may no longer be pertinent to 20th century post-transition economies with their more complex relationships.

Energy use is a good environmental measure because it is closely correlated to total material throughput and pollution. Hamilton (N 1997) notes that the energy flows resulting from human activities may be less ecologically significant than the *material* flows associated with them. The increasing concentration of atmospheric carbon dioxide is just one example of the way anthropogenic, or human-caused, movements of materials are changing the evolutionary and dynamic equilibrium of the earth and threatening the stability of the biosphere.

Hamilton says that the goal is dematerialisation without a loss in the quality of consumption or amenity. While the degree to which this is necessary is uncertain, several leading environmental research and advocacy organisations have urged a halving of global material flows, he says. This implies a need for developed nations to reduce their material consumption to 10% or less of present levels, according to these organisations. They argue this reduction, while obviously massive, is achievable using present technologies. A similar scenario is presented in a new report to the Club Of Rome, which urges the adoption of a *Factor 4* formula: that is, increasing global resource productivity fourfold by doubling wealth while halving resource use (von Weizsacker et al 1997).

Recent research suggests the total material requirement of an industrial economy - the amount of natural resources, excluding air and water, used to produce its flow of goods and services - is huge (Adriaanse *et al* 1997). Even very modern industrial economies require 45-85 tonnes of natural resources per person per year. Much of this activity is not captured in national economic accounts partly because the resources involved do not become commodities that are bought and sold. These hidden flows are associated with mineral extraction, crop harvesting and infrastructure development, for example.

Table 3 shows some of the material flows for Sydney between 1970 and 1990. It shows increases in per capita resource inputs and waste outputs ranging up 90%.

*[Insert table 3 about here]*

## **Trends in indicators of sustainable development**

Doubts about the compatibility of current patterns of economic growth with sustainable development are borne out by studies of trends in a wide range of indicators over recent decades. Corson (1996) has summarised many of these studies. One study used a composite index to measure environmental trends in nine industrial nations between 1970 and 1990. The index combines 21 broadly accepted indicators covering six areas: air pollution (6 indicators), water quality and use (6), wetlands and woodlands (2), industrial and agricultural chemicals (3), municipal and nuclear waste (2), and passenger car traffic and energy consumption (2).

The study calculated the percentage change in each indicator over the 20 years, computed the average change within each of the six areas, and then combined the six averages into a composite average. The results show an overall decline in the composite index for all nine nations, ranging from 11 to 41%. Negative trends in the 21 indicators outnumbered positive for 7 of the 9 nations. And for all nations together, negative trends outnumbered the positive by 105 to 82. The trends were largely positive for air pollutants, slightly positive for water quality, mixed for wetlands and woodlands, and predominantly negative for chemicals, waste, automobile traffic and energy use.

Corson has himself examined 66 global environmental and socio-economic trends since 1950. Each was characterised as positive (moving generally towards sustainability), negative (moving generally away from sustainability) or mixed (having both positive and negative features). Of the 43 natural resource and environmental trends, 25 appear to be negative, 12 positive and 6 mixed. Of the 23 socio-economic trends, 10 appear to be negative, 8 positive and 5 mixed. The trends are mainly negative for resource use, the atmosphere, water, agriculture, forests, biological diversity, transportation, refugees, socio-economic equity and military conflict. Positive trends are apparent for health, education, energy use, population growth rate, military spending and nuclear weapons stocks. Corson notes that: "On balance, the indicators show an overall trend away from sustainability. Many negative trends show no sign of slowing, and several have accelerated, including deforestation, soil erosion, and loss of plant and animal species."

Corson also analysed 65 environmental, economic, social and political trends in the United States between 1970 and 1993. Of 37 environmental and natural resource trends, 12 were judged to be generally positive (showing improvement or movement towards sustainability), 20 were negative (moving away from sustainability) and 5 were mixed (having both sustainable and unsustainable aspects). All air quality trends were positive, water quality and supply trends were mostly positive and trends for wildlife, natural habitats and waste were generally negative. Of the 28 economic, social and political trends, 5 were positive, 18 negative and 5 mixed.

The picture that emerges from trends in indicator sets becomes even more graphic when those in single, composite indicators are calculated, especially as these can be directly compared to GDP trends. The most widely applied of such indicators is the Index of Sustainable Economic Welfare (ISEW) and the similar Genuine Progress Indicator (GPI), which have already been discussed.

The construction of the ISEW/GPI essentially involves taking the private consumption component of per capita GDP and adjusting it for income distribution, subtracting spending to offset social and environmental costs (defensive expenditure), adding the value of unpaid labour; accounting for longer-term environmental damage and the depreciation of natural capital; and including investment. However, the number of factors included in the construction and their treatment can vary considerably from version to version and country to country.

The ISEW or GPI has now been constructed for about half a dozen developed nations. All show a similar trend over the past 50 years, with the ISEW or GPI increasing with GDP (but sometimes at a lower rate) up to the 1970s, then levelling off or falling away while GDP continues to climb (Cobb *et al* 1995b; New Economics Foundation 1997; Stockhammer *et al* 1997; Hamilton C 1997).

The reasons for this divergence may vary between nations, but include: the cost of environmental damage and resource depletion has grown; income distribution has worsened; foreign debt has increased; the cost of unemployment and overwork has risen; capital investment has not been maintained; and (unpaid) household production is being transferred to the market.

### **Progress or transformation?**

The evidence, from both public-opinion surveys and research into quality of life and sustainability, suggests we need to take seriously in public debate at least the possibility that radical change is required, that fine-tuning the status quo will not achieve the outcomes we seek. Some statements to this effect, even in scholarly journals and from government advisers, are quite unequivocal.

The UK Panel on Sustainable Development set up by the previous Conservative government, and chaired by Sir Crispin Tickell, a distinguished diplomat, reported that nothing less than “a different philosophy in local and national government” would avoid potentially crippling social and economic decline resulting from environmental damage (Vidal 1997).

The OECD’s High Level Advisory Group on the Environment predicts that “over the coming decades, economic growth will not be sustainable without serious attention to related environmental and social issues” (HLAGE 1997). The group argues that the lack of coordination between the earth’s natural and financial capital is both dangerous and inefficient. The very global economic activities that degrade valuable ecosystems pose threats to human beings and thereby threaten economies and markets. The group urges the OECD not just to add ‘sustainable development’ to a list of important issues, but to make it an overarching strategic issue and a way of ordering and assessing all other issues.

Ayres (1996), states in a paper voted the best published in the journal, *Ecological Economics*, in 1996: “In the last few months (he was writing in early 1995), I have changed my view radically on several important issues, notably economic growth, trade, social progress and equity. Today I have deep misgivings about economic growth per se. This is partly because the evidence is growing that economic growth (such as it is) in the western world today is benefiting only the richest people alive now, at the expense of nearly everybody else, especially the poor and powerless in this and future generations.”

Ayres makes four broad claims in his paper: (1) economic growth (as conventionally measured) is not, and never has been, the most important contributor to increasing human welfare; (2) technological progress has always been the primary source of both growth and welfare (considered separately); (3) trade was at best a minor

contributor to growth in the past and is now contributing negatively to both national wealth and equity, hence to welfare, in Western Europe and North America, and; (4) both growth (of GDP) and trade are increasingly incompatible with environmental protection.

The report of the second Asko meeting of ecologists and economists (Arrow *et al* 1995), cited earlier in this paper, concludes that economic growth is not a panacea for environmental quality; in fact, it is not even the main issue. “What matters is the content of growth - the composition of inputs (including environmental resources) and outputs (including waste products).” The report notes that this content is determined by, among other things, the economic institutions within which human activities are conducted, and that these institutions need to be designed so that they provide the right incentives for protecting the resilience of ecological systems. The report’s conclusion is as true of social well-being as it is of sustainability; just as we need to maintain ecological life-support systems, so too do we need to maintain social support systems.

At the most fundamental level, we are faced with a question of values, which influence our behaviour and shape our priorities, and a need for a transformation in our worldview or *weltanschauung*. This is the paradigm shift many believe is necessary. Tickell (1996) says the current assumptions in industrial countries - including the belief in increasing material prosperity and economic growth, the faith in technological fixes, and the culture of rising expectations - “amount to a treadmill to nowhere”. But in recognising its character, he says, “it is extremely difficult to get off.”

Tickell says that even if we know some of the answers, “it will take a major change in values to bring about the changes in policy needed to deliver sustainable development”. Such changes, he says, usually occur over time as new generations come of age. “As Max Plank pointed out ‘one will have to wait for the old paradigm to die out and for the advocates of the new paradigm to grow up, before we see the desired change in attitudes and values’.”

Tickell concludes his paper with two fundamental questions: First, do we know where we are going? Or put differently, do we recognise an ultimate target of a society with population, resources and environment in broad balance? Second, can we cope with the problems raised by the unstable and unsustainable society we have created for ourselves? To each of these he replies, ‘not yet’, warning that we may not have all that much more time to find the answers.

## **AN INDICATORS STORY OF AUSTRALIA**

Most indicators research appears to be going in two directions: towards improving single, composite indicators such as the ISEW and GPI; and towards developing more comprehensive sets of indicators. For example, the United Nations Commission on Sustainable Development has produced a ‘working list’ of 130 indicators, covering 30 categories, based on the pressure-state-response framework (UNDPCSD, 1996).

The OECD has published a list of 33 indicators of social well-being (Senate Legal and Constitutional References Committee 1996, p96). American cities that have established sustainability or quality-of-life measures include: Seattle (40 indicators covering four areas), Pasadena (112 indicators covering ten areas) and Jacksonville (74 indicators covering nine areas) (Corson, 1996).

This section of the paper arose from an attempt to take a middle path, and to identify a 'minimum set' of 10-15 'macro' indicators, including GDP, that could be used to track national progress. However, this objective was revised to examine, from an historical perspective, a 'set of six' indicators that seemed to provide interesting and useful insights into Australia's development over the past 100-150 years. The six indicators are: per capita GNP, life expectancy, unemployment, per capita energy consumption, area of land cleared for pasture and crops, and population (see Figure 1).

*[Insert Figure 1 about here]*

The 'set of six' were chosen for the following reasons:

- They provide a broad measure of changes in the economy, social well-being and the environment.
- They reveal significant aspects of the relationships between these three central features of Australian life.
- Relatively good time-series data exist for each indicator for a century or more (with the exception of the land-clearance data, which was nevertheless included to extend the environmental 'cover' of the indicators set).

There is the potential to develop the set. It could be made more comprehensive by including a few more indicators of broad significance - for example, the level of national savings in the economic area, and another measure of social well-being and cohesion. For any future, yearly reporting purposes, the indicators should perhaps also be expressed as annual growth rates, and life expectancy complemented or replaced with a measure of how well we live, not just how long. A broad measure of inland water quality would be a useful measure of environmental degradation (which is expected to continue even if clearing ceases). The national set of indicators could also be supplemented by a 'second level' of regional indicators where national aggregated figures would not be useful - for example, of urban air and water quality in each of the capital cities.

### **Per capita GDP**

Real per capita GDP has increased almost fivefold in real terms over the course of this century, and has more than doubled since 1950 (Snooks 1994, p 180, ABARE 1995, p 3). The trend since 1850 shows two distinct phases. The first phase was a period of little overall growth up to just before World War II. This period included the depressions of the 1890s and 1930s, which effectively wiped out most of the gains of the preceding decades.

The second phase is the period of sustained, high growth from the mid-1930s (the rate of growth has slowed since the mid-1970s, but in dollar terms Australians, on average, have continued to grow rapidly richer). Technological innovation and capital accumulation have been the major sources of (per capita) economic growth, and in the post-war period stimulated the rapid expansion of secondary industries in Australia as well as demand for its natural resources.

Real GDP per capita grew by an average 1.34% a year between 1861 and 1889, only 0.11% between 1889 and 1939, and 2.32% between 1946 and 1990 (Snooks 1994, p24).

Despite the lack of sustained growth before the war, this was still a period of considerable progress: for most Australians life got better. This was, in part, because wealth and income were becoming more evenly distributed, at least during the latter part of this period. Even though average wealth did not change much overall, most people became materially better off (McLean and Pincus 1983, Piggott 1984, McLean and Richardson 1986, Travers and Richardson 1993, pp 66-68; Sue Richardson, University of Adelaide, *pers com*).

For example, the share of wealth held by the bottom 90% of Australians increased from 22% in 1915 to 35-40% in the late 1960s, largely at the expense of the top 1 (Piggott 1984). Income distribution became more equal over this period, specifically between 1933 and 1969, and resulted from changes in the income shares of the top and bottom 10% (McLean and Richardson 1986). Earned-income inequality has risen since the early 1980s, although this has been offset by changes in taxation and social-security payments (Harding 1997).

Public policy in areas such as education, health, housing and work also contributed to improvements in living conditions during the earlier phase. The standard of housing rose. A system of free, compulsory, public education was established, and young people stayed longer at school and so entered the workforce later. The status and rights of women (including the right to vote) improved. Industrial legislation sought to replace industrial conflict with the rule of law. A basic wage was introduced, the average working week fell from 52-54 hours in 1890 to 45 in 1940, and workers could 'retire' rather than working all their lives.

This social progress continued during the post-war economic boom, with further reductions in the working week to the current 38 hours, and the expansion of entitlements such as paid annual leave, long-service and sick leave, and unemployment benefits. Another, most significant change during this period has been the growing economic independence of women as a result of their increased participation in the workforce.

Without downplaying the improvements in quality of life that flowed from the post-war period of sustained economic growth, or the hardships caused by the two depressions, the trend in per capita GDP over the past 150 years supports the view expressed earlier in this paper that even material progress does not always or

necessarily depend on economic growth. Indeed, improvements such as a shorter working week represent a trade-off between quality of life and increased GDP.

## **Life expectancy**

Life expectancy at birth has improved greatly for Australians, rising about 60% since the 1880s from 51 to 81 years for women, and from 47 to 75 years for men (Vamplew 1987, Jain 1994, ABS 1995). What is striking about this trend, however, is that life expectancy rose steadily during the latter part of the last century and the first half of this century, when overall economic growth was low.

Significant factors behind increasing life expectancy include improved sanitation, water supplies, housing and nutrition (Colin Mathers, Australian Institute of Health and Welfare, *pers com*). These are thought to have been more important than medical advances such as antibiotics and immunisation, although these also contributed, especially in the post-war period. As discussed in the previous section, all these factors can and do occur independently of high per capita wealth.

Life expectancy levelled off in the 1960s as deaths from lifestyle diseases rose. The most important of these was heart disease. Lung cancer caused by cigarette smoking was also claiming more lives, as were traffic accidents. Lifestyle changes -including improvements in diet, exercise and a decline in cigarette smoking among men - and medical advances - including better control of hypertension - have since reduced mortality rates from lifestyle diseases. Over the same period, better cars and roads, seat belts and random breath-testing have lowered the road toll. As a result, life expectancy once again rose.

Increases in life expectancy reflect falling mortality rates. The earlier improvement in life expectancy resulted largely from a fall in infant mortality, which was at its steepest before 1950, and is now very low. Gains over the past two decades have stemmed largely from decreasing mortality among the elderly.

## **Unemployment**

The trend in unemployment since the 1860s reveals the dramatic impacts of the two depressions, and the unprecedented low level of unemployment during the post-war period of rapid growth, through to the mid-1970s (Withers *et al* 1985, ABS 1996). It also shows the breakdown of the nexus between growth and employment since then; the 1990s have the highest level of unemployment outside the two depressions.

This breakdown is attributable to the profound changes that have swept the economy over the past two decades, including accelerating rates of technological innovation, industry restructuring, privatisation and globalisation. Of course, economic recessions produce higher unemployment than periods of growth. However, it is also true that today's pressures to increase efficiency and productivity in order to remain competitive and so maintain or increase economic-growth rates have resulted in substantial job shedding. This has contributed to the 'ratcheting' up of long-term rates of unemployment that are apparent in the figure. Coinciding with this development has been an increase in part-time and casual employment and 'overwork' among full-time workers.

Given the importance attached to equity in considering health and well-being, it might have been preferable to use an income-distribution measure such as the Gini coefficient instead of unemployment. But Australia lacks good long-term data on such measures. A good time series for unemployment is available. Its choice as an indicator is also justified by the importance attached to it by Travers and Richardson (1993) in their book, *Living decently - material well-being in Australia*.

They say that at the end of the 1980s, most Australians were indeed 'living decently', with high levels of affluence and relative equality. They attribute this positive picture to four factors: low unemployment, a 'good enough' social-security system, very high levels of home ownership, and high-quality government provision of specific goods and services such as health and education. They note that all these factors are under threat in the 1990s.

Of the four, they say that "low unemployment is so important as to be in a category of its own....Our proposals for the future are centred on reasserting a goal of low levels of unemployment. If that goal were abandoned, or proved to be unrealisable, we know of no set of policy proposals that could enable our account of Australia at the end of the 1980s to hold good in the future" (Travers and Richardson 1993, pp ix, 224).

### **Per capita energy consumption**

Today, Australians each consume about five times more energy than our forebears did at the turn of the century (Vamplew 1987, Bush 1993). Energy drives economic activity; the trend in per capita energy use corresponds closely with that in per capita GDP. As already noted, energy consumption is a good general measure of overall environmental impact because of its broad association with total material consumption and waste production. Given that almost all of our energy comes from fossil fuels, its use also contributes directly to the threat of global warming.

Energy use, then, provides a measure of the dependence of our economy and lifestyle on the physical stocks and flows that constitute the nation's 'metabolism' - the resources we consume and the wastes we produce. Australian settlements have a high 'livability' - a measure of social amenity, health and well-being - by international standards, but also higher metabolic flows (SoEAC 1996).

Energy consumption per unit of GDP is now falling in the developed world (less in Australia than in other countries) as a result of new, more-efficient technologies and changes in industry structure. However, consumption per head is generally continuing to increase. Thus this is a key indicator of the extent to which we reduce our metabolic flows, or 'dematerialise' our lifestyles, to achieve sustainability.

So far, at least, increased energy efficiency has been used to increase outputs rather than to reduce inputs, hence the continuing rise in GDP. Dematerialised economic developments tend to be in addition to, not instead of, the high materials- and energy-flow sectors. As the former are growing quickly (information technologies are an

example), their share of GDP is rising; but the material and energy flows continue to increase.

## **Land clearance**

Another broad environmental measure is the extent of clearance of native vegetation for improved pasture and cropping (Graetz *et al* 1995 [the data were compiled by F Bullen], SoEAC 1996, p 6-10, ABS 1997, p 373; Graetz, CSIRO Office of Space Science and Applications, Ian Noble, ANU, *pers com*). This represents a specific environmental consequence of increased economic activity, energy use and, to a lesser degree, population growth. The data do not provide a full and accurate picture of clearing, but the broad trend, if not the actual areas involved, is believed to reflect the general pattern of clearing.

The trend refutes the conventional wisdom that most of the clearing of native vegetation in Australia happened last century and early this century (DEST 1995). In fact, as much land was cleared in the last 50 years as in the preceding 150 years. Clearing embodies the tensions between growth and sustainability. While it can be argued that clearing represents land-use changes associated with economic development, not land degradation, it poses an environmental danger for two main reasons: it is linked to salinity, soil erosion and other forms of degradation; and it reduces biodiversity through the destruction of natural habitats (SoEAC 1996). Degradation reduces the land's productive capacity and could make its use unsustainable. Biodiversity is important for ecological, ethical, cultural and economic reasons. It underpins the ecosystem processes on which life depends, and it is a relatively untapped economic resource.

Australia is facing problems in both these areas. For example, the area of land affected by dryland salinity in Western Australia has increased from 264 000 hectares in 1982 to 1 804 000 ha in 1996, and is expected to reach 6 109 000 ha before reaching 'an equilibrium' some time in the future (Agriculture WA *et al* 1996). The area of affected land in South Australia has risen from 55 000 ha to 402 000 ha over this period and is expected to grow to 600 000 ha. For the whole of Australia, the area is expected to increase from 2 476 000 ha in 1996 to over 11 783 000 ha (Agriculture WA *et al*, 1996). There are long time lags involved in salinisation and other degradation processes.

With biodiversity, for those animals and plants about which we know enough to assess their current state, the trends are disturbing (SoEAC 1996). Some 5% of the higher plants, 23% of mammals, 9% of birds, 7% of reptiles, 16% amphibians and 9% of freshwater fish are extinct, endangered or vulnerable. Australia has the world's worst record of mammal extinctions. In the past 200 years, ten of 144 species of marsupials and eight of 53 species of native rodents have been lost.

In addition to these problems, clearing also contributes roughly a sixth of Australia's greenhouse emissions through the carbon dioxide released by the burning and decomposition of vegetation and from the soil (NGGIC 1997).

## **Population**

Australia's population has grown about fivefold over the past 100 years, and has more than doubled since 1950 (Vamplew 1987, ABS 1986, 1991). Population growth and the per capita increases in GNP and energy consumption mean Australia's overall level of economic activity and energy use has increased by a factor of about 25 during the 1900s. Although the environmental impacts of this activity can be moderated through improved technology, industrial restructuring and policy initiatives (urban air quality has improved on several measures over the past few decades, for example), this increase still poses a major environmental challenge.

In a submission to a parliamentary inquiry in Australia's population carrying capacity, CSIRO (1994) argues that population cannot be considered in isolation from other factors that influence the human impact on the environment, including lifestyle, social organisation and technology use. "Any (further) rise in population will increase the necessity and the urgency to do what already needs to be done to enhance Australia's population carrying capacity." CSIRO says resource and infrastructure issues, especially regarding water and energy use and waste disposal, already require more attention to achieve a sustainable way of life. "...Australia can carry its present population - or a higher one - in an economically, environmentally and socially sustainable way only if the nation is prepared to change the way it does things."

Australia's population growth rate was 1.1% in 1993-94 - high compared to other industrial nations (SoEAC 1996). The rate of natural increase - the difference between births and deaths - is relatively stable at 0.8% a year, with migration making up the remainder of the growth. Australia's current population of 18 million could reach as high as 40 million by 2050 (Cocks 1996, CSIRO Wildlife and Ecology, *pers com*). The link between population and economy is disputed. Cocks argues the economic benefits of a growing population are, at best, very small. On the other hand, significant population growth could reduce quality of life in the big cities, where most Australians live. He advocates a 'middle way' in the debate on population growth versus stabilisation: setting net migration at a level that would see Australia's population plateau within a generation or so at 19-23 million.

## **Overview**

The 'set of six' indicators reveal some important aspects of connections between economic growth, social advancement and environmental impacts that lie behind Australia's development. They indicate that Australia has progressed in material terms over the past century and more, but that the improvements are less directly linked to economic growth than is widely believed - as indicated by the trend in life expectancy - and that the nature of the relationship could be shifting - in the area of unemployment, for example.

The indicators also show the magnitude of the increase in economic activity when per capita growth is combined with population growth, and the scale of the demands on natural resources and the environmental impacts of that activity. Some of these impacts - for example, dryland salinity - have long time lags, so that we are yet to experience the full cost of past development. The trends reveal the importance of

long time series. Some features of the picture that emerges would be quite different if the series had gone back only 50 years, and 20-year data would have revealed little at this level of broad generality.

## CONCLUSION

This paper has discussed the notion of progress - of whether life is getting better - from several different perspectives:

- People's perceptions about their own lives, happiness and futures, and about life and the future more generally.
- Research on the relationship between economic growth, quality of life and ecological sustainability, including trends in indicators and the development of new indicators.
- The 'story' of Australia's development as revealed by six 'macro' indicators.

The picture that emerges from these different perspectives is that progress - as currently defined in largely material terms and measured in terms of growth in GDP - has in the past delivered undoubted improvements in quality of life in the developed world. Progress may well still hold this promise for the developing world (although even there it is creating social and environmental strains). However, material progress now presents developed nations with diminishing benefits and escalating costs. It appears to be becoming increasingly irrelevant, even hostile, to well-being and quality of life through the impacts on both the natural environment (improvements in some areas notwithstanding) and social structures and relationships.

The case for economic growth is often predicated on the belief that wealth is necessary to address social and environmental problems; wealth creation has to come first. This linear model, with wealth going in one end of the pipeline of progress and welfare coming out the other, is simplistic. It ignores the complexity of social, economic and ecological systems. Human, social and natural capital is as much a prerequisite of wealth as a consequence, quite apart from its contributions to non-material well-being and to sustainability.

More specifically, the central rationale for economic growth seems flawed in several important respects:

- It reflects too narrow a view of human well-being, and fails to explain why, after 50 years of rapid growth, so many people today appear to believe life is getting worse
- It overestimates the extent to which past improvements in material well-being are attributable to growth.
- It underestimates the gulf between the magnitude of the environmental challenges we face and the scale of our responses to them, at least so far.

Most public and political debate about the economy overlooks these points. It tends to take for granted the link between economic growth and welfare, and to assume that

environmental problems can be addressed through innovation, regulation and market mechanisms *without* the need for more fundamental changes in values and priorities. So, usually, these issues are not even canvassed.

The issue of contention in the debate about progress is not simply a matter of growth versus no-growth. Recessions obviously cause hardship, especially through increased unemployment. However, that growth is better than negative growth in generating jobs - the main political justification for promoting growth - is insufficient reason for not looking more closely at *what* is growing, what *other effects* this growth is having, and what *alternatives* might exist.

The thrust of this paper is to suggest we need to examine more critically the whole basis on which progress is currently defined, measured and achieved - that is, by increasing (real per capita) GDP, almost two thirds of which comprises private consumption of goods and services. This will require the development of a more comprehensive, integrated framework of indicators of progress, one that achieves a better balance than now exists between the environmental, social and economic dimensions of life.

Economic activity can be directed towards increasing personal wealth and consumption, and it can be directed towards restoring and protecting the environment and strengthening social relations. The redirection of economic activity to improve the quality and sustainability of life may or may not entail growth. And this redirection might generate more work than just focusing on the rate of growth.

There is a case for devising a strategy to reduce the proportion of GDP derived from *consumption* undertaken for short-term, personal gratification, and to increase that involving *investment* directed towards broader and longer-term social and environmental goals. To suggest this is not necessarily to be *anti* the economy, business or technological development; it is to argue that these activities need to be driven by different values towards different ends.

It should not surprise us that, at a time when conventional notions of growth and progress are being increasingly questioned and challenged, powerful sections of society seem to be more deeply committed to them than ever. The whole of our society has been shaped by and structured around these notions. Growth is central to our economic system, and material progress lies at the heart of our culture - a culture powerfully reinforced by the mass media, marketing and advertising. And it is in the nature of paradigm shifts that those with most invested in the old paradigm cling most tenaciously to it.

So...is life getting better? If, on the basis of the evidence, we answer 'yes' to the question, taking into account both quality and sustainability, then we can continue on our present path of progress and enjoy the journey. If we answer 'no', we need to pose, to ourselves and in public debate, several other questions:

- What do we want from life? (What is its purpose? What makes a better life?)

- How do we best get what we want? (Is it through continuing economic growth and material progress of the sort we now have?)
- What values will promote what we want, and discourage what we don't?

We will have to work out the answers to these questions, individually and collectively, before we can expect government, business and other institutions to reflect them in their policies, programs and products. Ultimately, how effectively we address many of the issues currently dominating political debate hangs on our answers to these fundamental questions.

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*Is life getting better?*

**Table 1 - Perceptions of trends in quality of life**

Group	Total better	Total worse	About same	Lot better	Little better	Little worse	Lot worse
<b>Total</b>	<b>13</b>	<b>52</b>	33	3	10	27	26
<b>Males</b>	<b>15</b>	<b>51</b>	33	4	11	28	23
<b>Females</b>	<b>11</b>	<b>54</b>	33	3	9	25	28
<b>Capital city</b>	<b>16</b>	<b>50</b>	33	4	12	26	24
<b>X-city</b>	<b>9</b>	<b>56</b>	33	1	8	28	28
<b>18-24 yrs</b>	<b>15</b>	<b>44</b>	39	1	14	34	10
<b>25-34 yrs</b>	<b>14</b>	<b>46</b>	39	3	11	24	22
<b>35-49 yrs</b>	<b>15</b>	<b>55</b>	29	3	11	30	25
<b>50+ yrs</b>	<b>10</b>	<b>57</b>	31	4	7	22	34
<b>&lt;\$30k</b>	<b>9</b>	<b>59</b>	31	3	6	26	33
<b>\$30-50k</b>	<b>11</b>	<b>54</b>	33	2	9	30	24
<b>\$50k+</b>	<b>19</b>	<b>42</b>	37	4	15	24	18

The question, asked in a Newspoll survey on 20-22 June 1997, was: 'Thinking now about the overall quality of life of people in Australia, taking into account social, economic and environmental conditions and trends: Would you say that life in Australia is getting better, worse or staying about the same?' Those who indicated it was getting better or worse, were then asked if that was a little or a lot better or worse. The income figures in the table are for combined household income from all sources before tax.

**Table 2 - The decline of public trust**

Occupation	1976	1981	1986	1991	1997
<b>Bank managers</b>	66	61	60	40	32
<b>Doctors</b>	62	63	63	69	66
<b>Dentists</b>	62	62	63	64	60
<b>School teachers</b>	56	55	57	59	64
<b>Police</b>	52	56	56	54	55
<b>University lecturers</b>	47	51	51	56	52
<b>Lawyers</b>	43	38	39	38	29
<b>Business executives</b>	22	22	23	15	16
<b>State MPs</b>	21	16	17	10	9
<b>Federal MPs</b>	19	15	16	10	9
<b>Newspaper journalists</b>	12	13	12	8	7
<b>Union leaders</b>	9	8	5	7	12
<b>Advertising people</b>	9	9	11	8	8
<b>Car salespeople</b>	4	3	3	3	3

Figures refer to percentage of people rating the occupation high or very high for ethics and honesty. Source: The Bulletin Morgan Poll, 1996, 1997

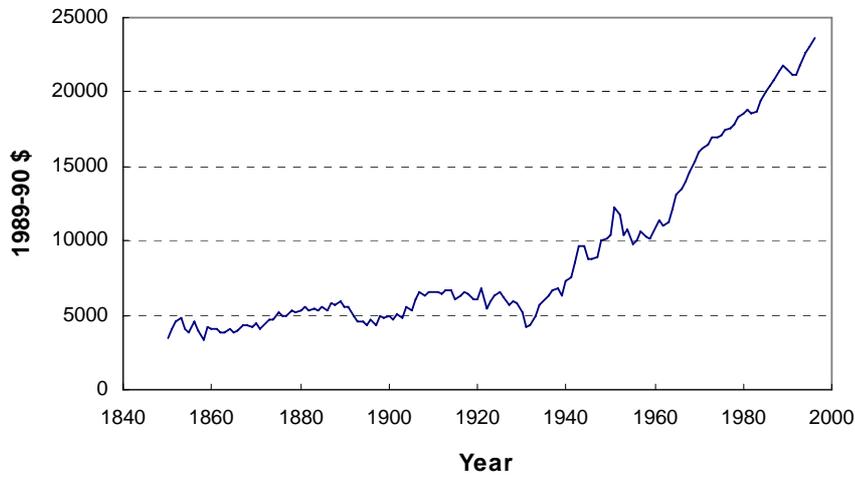
**Table 3.** Trends in resource flows, Sydney, 1970-1990

	1970	1990
<b>Population</b>	2 790 000	3 656 500
<b>Resource inputs per head</b>		
<b>Energy (MJ)</b>	88 589	115 377
<b>Food<sup>a</sup> (tonnes)</b>	0.52	1.00
<b>Water (tonnes)</b>	144	180
<b>Waste outputs per head</b>		
<b>Solids (tonnes)</b>	0.59	0.77
<b>Sewage (tonnes)</b>	108 <sup>b</sup>	128 <sup>c</sup>
<b>Air wastes (tonnes)<sup>d</sup></b>	7.6	9.3

Notes: (a) Reflects increased use of primary foods in production and processing. (b) Includes stormwater. (c) Waste water within sewerage systems only. (d) The increase is in carbon dioxide; other air pollutants have decreased. Source: Taken from SoEAC 1996, Table 3.20, p 3-34

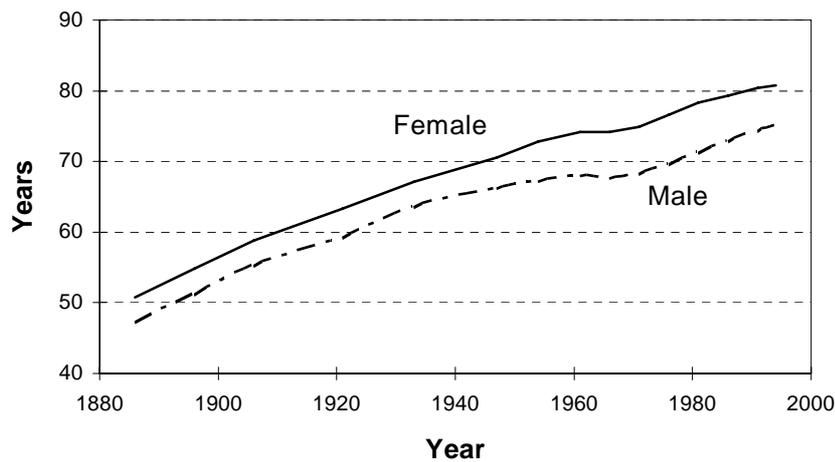
Figure 1. Trends in six indicators of Australia's development

(a) Per capita GDP - 1850-1996



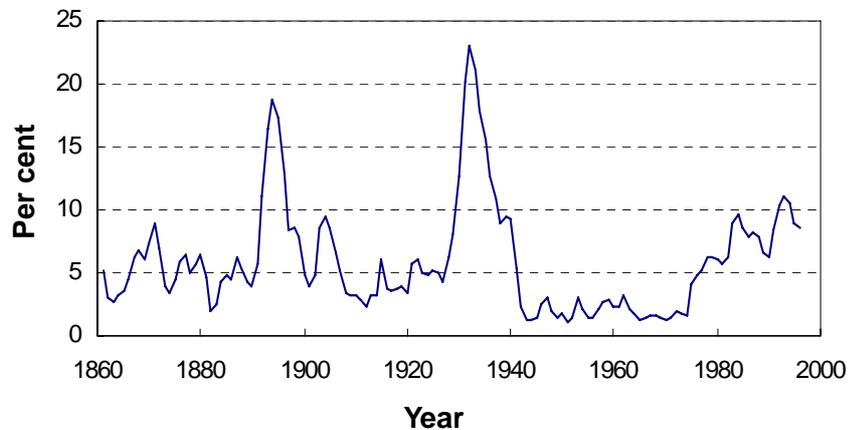
Source: adapted from Snooks 1994, p 180-181; ABARE 1995, p 3.

(b) Life expectancy at birth - 1880-1995



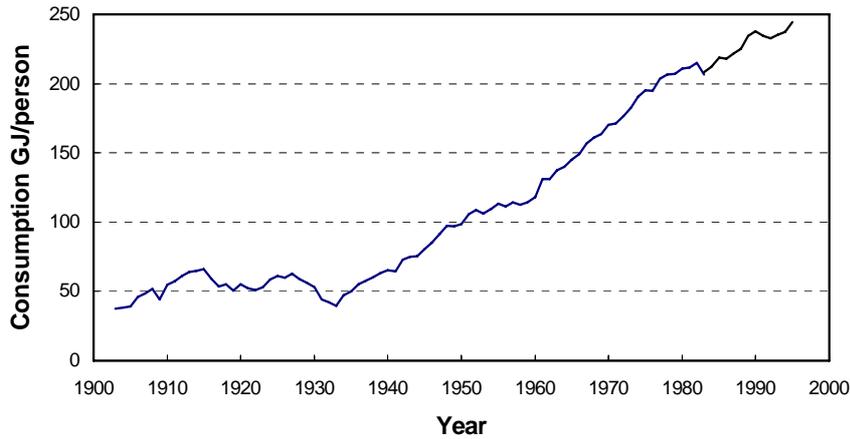
Source: Vamplew 1987; Jain 1994; ABS 1995.

(c) Unemployment - 1860-1996



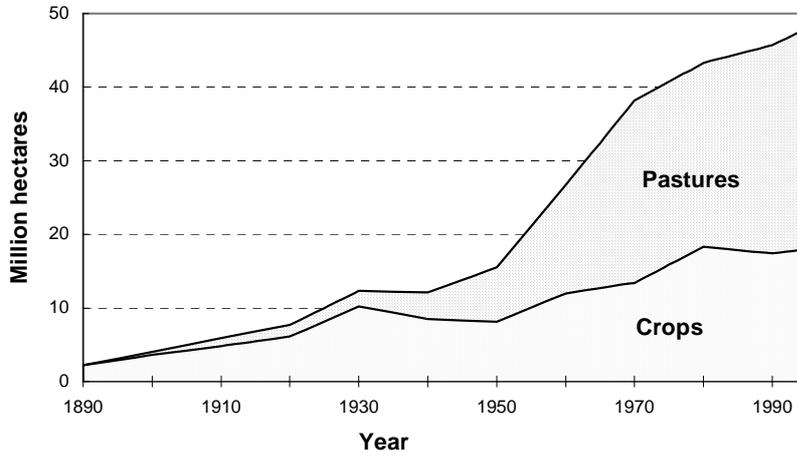
Source: Withers *et al* 1985; ABS 1996b.

(d) Energy consumption per capita - 1900-1995



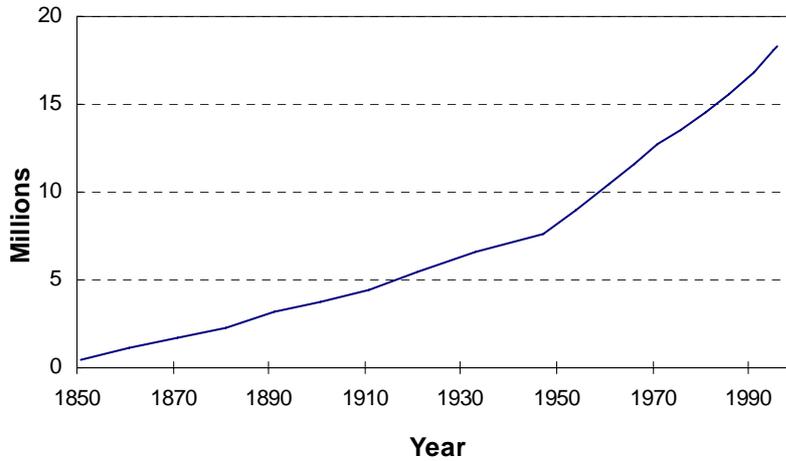
Source: Vamplew 1987; Bush 1993.

(e) Area of crops and sown pasture - 1890-1995



Source: Graetz *et al* 1995; SoEAC 1996, p 6-10; ABS 1997, p 373.

(f) Population - 1850-1996



Source: Vamplew 1987; ABS 1986, 1991.