

# Keeping tabs on environmental conduct

Australia's oceans and estuaries away from major settlements are in good shape.

Can you imagine a day when key environmental indicators are viewed alongside economic indexes as a measure of environmental conduct? Can you picture the media devoting as much time to analysing indexes of energy efficiency and landcover change as they do to inflation figures and the balance-of-payments?

It may seem an unlikely scenario, but moves toward achieving such a shift in focus are gaining momentum. An important milestone in this process is the release of a comprehensive report outlining key challenges facing managers of Australia's land and water resources, human settlements and biological diversity.

*Australia: State of the Environment 1996* has been prepared by scientists, academics, industry leaders and environmentalists as part of the National Strategy for Ecologically Sustainable Development. The report assesses Australia's progress toward ecological sustainability, and lays a framework for refining the knowledge base on which environmental decisions are made. It also initiates the formation of indicators that ultimately will raise the profile and accountability of Australia's environmental management.

Below: Suggested indicators for resource inputs to human settlements. Trends in indicators such as these will be used in future to measure the quality and management of Australian environments. (Source: Aust. StE 1996.)

Indicators are physical, chemical, biological or socio-economic measures that can be used to assess natural resource management and environmental quality. Developing a national set of indicators is a major goal of the Federal Government, in consultation with state and territory governments and the Australian Local Government Association. Once established, the indicators will be used in regular reports on changes and trends in environmental conditions, (just as economic indicators gauge the economy), warning of where social behaviour and economic policies may lead to environmental degradation and associated economic and social costs. They will also enable the outcomes of government policies to be measured.

## Laying the foundation

*Australia: State of the Environment 1996* has 10 chapters. The introduction outlines the report's background and purpose, and the second chapter presents an overview of Australia's natural, social and cultural landscape. Chapters 3 to 9 discuss issues relating to human settlements, biodiversity, the atmosphere, land resources, inland waters, estuaries and the sea, and natural and cultural heritage. The final chapter assesses Australia's progress towards ecological sustainability.

In chapters 3 to 10 of the report, information is structured under three main headings: pressure, state and response. This structure is adapted from an OECD framework used to develop indicators for global environmental issues. For example, an OECD indicator on environmental pressure leading to climate change is carbon dioxide emissions. Global mean temperature is an indicator of the state of the environment in relation to that pressure, and energy efficiency is an indicator of society's response.

A similar pressure-state-response framework is used in *Australia: State of the Environment 1996* to identify and categorise Australia's environmental trouble spots. From this beginning, a range of potential environmental indicators has begun to take shape. The next step is to define technically, specific indicators for each category's key environmental issues. This task is being coordinated by the Federal Government's State of the Environment Reporting Unit.

One of the scientists working on this project is Dr Denis Saunders from CSIRO's Division of Wildlife

Resource inputs	Environmental indicators for urban, rural and remote settlements
Water	<ul style="list-style-type: none"> <li>Per head water consumption - domestic, commercial and industrial</li> <li>Industrial water consumption per unit of GDP output</li> <li>Water quality - domestic, recreational and industrial</li> </ul>
Energy	<ul style="list-style-type: none"> <li>Per head energy consumption</li> <li>Per head transport fuel consumption</li> <li>Per head consumption of imported oil</li> <li>Industrial energy consumption per unit GDP output</li> </ul>
Food	<ul style="list-style-type: none"> <li>Per head food consumption (Kcals and gms protein)</li> </ul>
Raw Materials	<ul style="list-style-type: none"> <li>Per head consumption of non-forest building materials (bricks, steel, aluminium)</li> </ul>
Forest Products	<ul style="list-style-type: none"> <li>Per head consumption of forest products (including firewood)</li> <li>Per head consumption of imported forest products</li> </ul>
Land	<ul style="list-style-type: none"> <li>Per head consumption of urban land</li> <li>Per head availability of open space</li> <li>% remnant vegetation</li> <li>Area of contaminated land</li> </ul>



and Ecology at Perth. Saunders, who helped to prepare the report's Biodiversity chapter, says the utility of State of the Environment Reporting can only be judged by what happens in the future.

'If in four to five years' time we produce another report that assesses changes based on environmental indicators so that we can assess change and our response as a community, it will be important,' he says. 'If not, its usefulness will have been limited to a ready reckoner of facts and figures about Australia's environment in the mid-1990s.'

Saunders says indicators of biodiversity are likely to focus on measurables such as the extent of change in landcover by bioregion (recorded by satellite imagery); changes in the status of species; and the number of Landcare groups that have developed catchment plans that explicitly take nature conservation into account.

Development of a national set of environmental indicators for Australia is expected to take a number of years to complete. In the meantime, the report says, there is an urgent need for changes in government policies and programs, corporate practices and personal behaviour in order to achieve ecological sustainability.

Evidence of the need for change is given on every page of *Australia: State of the Environment 1996*. Illustrations, photographs, diagrams, tables, case studies and summaries are used to highlight serious environmental problems resulting from population

growth and distribution, lifestyles, technologies and demands on natural resources in the past 200 years or more. Better management cooperation, planning from an ecological perspective, a greater knowledge of our environment and more sophisticated data management systems are the major improvements needed to achieve sustainability, the report says.

This special *Ecos* feature highlights some of the environmental difficulties described in the report, and offers examples of where research can help.



Simon Neville/Ecolines

Extensive land clearing has led to soil erosion, salinity, waterlogging, acidification and reduced water quality.

## The good, the bad and the ugly

*AUSTRALIA: State of the Environment 1996* contains both good and bad news about the status of Australia's environment. Here are some of the report's conclusions.

### Good news

- Australia has no problem with sulfur dioxide and acid rain. Levels of some urban air pollutants, including lead, carbon monoxide, nitrogen oxides and large particulates have declined in recent years.
- The quality of our food and urban drinking water is generally good.
- Oceans and estuaries away from major settlements are in good shape.
- Urban housing is generally of good quality, and a system exists for protecting significant places.

### Good moves

- Establishment of multiple-use, bio-regional management regimes such as the Great Barrier Reef Marine Park Authority.
- Management by traditional owners of significant elements of natural and cultural heritage, such as Uluru-Kata Tjuta, Kakadu and Jervis Bay.

- The limiting of further water diversion from Murray-Darling Basin rivers.
- New Fisheries Acts to sustainably manage resources in the face of increasing fishing pressure.
- Landcare has mobilised landowners and communities to improve land-use and conservation practices.
- Prompt action to phase out ozone-depleting substances such as CFCs.
- Queensland, WA and SA are promoting renewable energy such as solar power.
- Kerb-side recycling schemes.

### Bad news

- Some landscape systems are not represented in national parks and other reserves.
- Not enough is known about Australia's biological diversity.
- Changes to fisheries management may not be enough to reverse the decline in some fish stocks.
- Inland waters in southern Australia are in poor shape. Too much water is being taken from some systems. Nutrient and salt levels and algal blooms are of concern.

- Waste water and sewage are polluting coastal environments.
- Land clearing, cropping on marginal land, irrigation, and introduced species are causing erosion, salinisation, acidification, waterlogging and poor soil structure.
- Old growth forests are being logged.
- Australia's per capita greenhouse gas emissions continue to be among the highest of the world.
- Few effective attempts have been made to contain urban sprawl or reduce car use.
- Social stress is emerging in pockets of poverty and high unemployment.
- Indigenous Australians have not shared the health improvements enjoyed by other Australians in the past 50 years.

### Bad moves

- National environmental management is hamstrung by varying government standards and structures.
- Some government agencies promote economic development, with little regard to environmental costs.
- The short-term objective of reducing the power prices may increase energy use, pollution and greenhouse gas emissions.