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Minister for the Environment and Heritage

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PO Box 1139
Collingwood VIC 3066
Australia

Telephone: +61 3 9662 7666
Freecall: 1800 645 051 (Australia only)
Fax: +61 3 9662 7555
Email: publishing.sales@csiro.au
Web site: www.publish.csiro.au

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STATE OF THE ENVIRONMENT REPORTING

Australian State of the Environment Committee

Chair: Professor Bruce Thom

Minister for the Environment and Heritage
Parliament House
CANBERRA ACT 2600

Dear Minister

It is with pleasure that I present the second independent and comprehensive report on the state of Australia's environment. It has been prepared by the Australian State of the Environment Committee in line with the Committee's terms of reference.

The preparation of the Report has been guided by seven theme reports on atmosphere, coasts and oceans, biodiversity, land, inland waters, natural and cultural heritage, and human settlements.

The Committee wishes the Report to be used by decision-makers at all levels of government and in the community. It should help people to be better informed about the state of our environment, the pressures we exert on it and the effectiveness of our responses. The Report and associated theme reports provide data and information on important environmental issues. The challenges facing Australia's environment require responses based on the best available information.

I personally wish to thank all those who have contributed to the preparation and publication of this comprehensive Report.

I am pleased to commend the Report to you and, through you, to the people of Australia.

Yours sincerely

Professor Bruce Thom
Chair

14 December 2001

SECRETARIAT: The Secretary, Australian State of the Environment Committee
GPO Box 787, CANBERRA ACT 2601
Phone: 02-6274 2037 Fax: 02-6274 1336

Executive overview

Condition of the environment

Australians have a high stake in the state of their environment. Our lifestyles and livelihoods depend on its health. People have used the continent's natural resources over tens of thousands of years and, following European occupation, have employed technologies which accelerated this exploitation. Our natural capital in air, land, minerals, water, oceans and ecosystems is continually encroached upon and our Indigenous and non-Indigenous heritage and traditions are often threatened or destroyed.

This Report by the Australian State of the Environment Committee (ASEC) provides an independent assessment of the condition of Australia's environment in the year 2001. The ASEC has, to the extent possible, provided information on environmental trends and changes and what these mean for more effective environmental planning and management. Despite some areas of significant improvement, Australians still have major challenges in the sustainable use of resources and in the maintenance of our natural and cultural heritage. This Report concludes, as did SoE (1996), that progress towards sustainability requires the integration of environmental with economic and social policies.

Pressures on the environment

Pressures on the Australian environment continue to grow. The seven theme reports (see http://www.ea.gov.au/soe/) that guided SoE (2001) identify such pressures, some of which arise from the political and economic conditions of Australian society.

Degradation of lands and waters remain of critical concern, especially in the intensive land use zone upon which much of Australia's agricultural production depends.

Population growth has particular effects on coastal Australia. Urban sprawl, high energy consumption, stormwater pollution of estuaries and coastal waters, and the continued decline in biodiversity as a result of land clearing all arise from population and economic pressures. Other processes such as habitat fragmentation and the introduction of pests across the continent and into marine environments threaten some terrestrial and marine ecosystems.

Beyond local pressures are those that occur on a national and global scale. These include economic and political effects which can inhibit the capacity of individuals, communities, or the nation to properly care for the environment. Australia alone cannot prevent global warming or sea level rise, nor, in isolation, create sustainable development. However, we have a responsibility to contribute to global solutions to these problems.

Responses to environmental pressures

The SoE (2001) identifies many responses since 1996 to pressures which affect the Australian environment. These include the following:

1 More legislation that embodies principles of ecologically sustainable development (ESD) including the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

2 Companies are factoring environmental issues into decision making. The Australian Mining Industry Code for Environmental Management is an excellent initiative. The fishing industry and the aquaculture industry are also developing codes of practice for more environmentally responsive operations.

3 Organisations such as the Australian Conservation Foundation (ACF) and the National Farmers' Federation (NFF) have combined in their presentations on the urgency to repair the country, including a possible costing.

4 The Regional Forest Agreement (RFA) process has provided increasing levels of certainty in forest management for the next 20 years.

5 Funded programs are emerging through cooperation of Commonwealth, state and territory governments to address many of the problems in a more integrated way.

6 The Council of Australian Governments (COAG) has set about the complex task of water reform.

7 Australia's Oceans Policy is addressing important marine environment planning and management issues.

8 The National Action Plan (NAP) for Salinity and Water Quality, announced in 2000, proposes joint Commonwealth, state and territory funding of $1.4 billion to address dryland salinity.
9 Natural Heritage Trust programs have engaged almost 400 000 Australians in environmental projects including Landcare and Coastcare.
10 The commitment to a five-year budget of $1 billion from 2001–02 for the Extension to the Natural Heritage Trust is expected to be more strategic in approach.
11 State government investments in new environmental programs are often innovative and far-reaching (e.g. the New South Wales 'coastal package' involving a RFA-type assessment, and stricter planning regime and legislative reform designed to better manage the effects of expected population growth).
12 Vehicle emission standards and fuel quality standards, recently mandated, will ensure that air quality in the large urban centres can be maintained or improved despite a projected increase in vehicles.
13 Announcements in 2001 that amendments are to be made to capital gains tax rules to ensure landowners who set aside part or all of their land for conservation in perpetuity will not be disadvantaged.

In addition, the ASEC notes that government interventions of various kinds, including legislation and regulations, codes of practice—formal or informal—have been effective in protecting and managing the environment. Examples are given in the *Thematic findings*.

An urgent need for action

Despite initiatives such as noted above, the state of the Australian natural environment has improved very little since 1996, and in some critical aspects, has worsened.

The increased area of land affected by salinity has captured the nation's attention and some action has been initiated. As well as the NAP for Salinity and Water Quality 2000, a new 15-year plan for the Murray–Darling system, and a similar plan for agricultural lands in Western Australia were announced in September 2001, each dealing with the problems of salinity, water quality and availability. The theme reports of SoE (2001) provide further information on the effect of land clearing, water extraction, forestry practices and the use of fire on biodiversity.

Throughout Australia, both physical and cultural heritage, including Indigenous languages, continues to be threatened and lost. As species are lost and habitats fragmented, degraded or destroyed, we lose our heritage and part of our life-support system. What happens on land also occurs to a lesser degree in the coastal waters surrounding Australia; sediment and

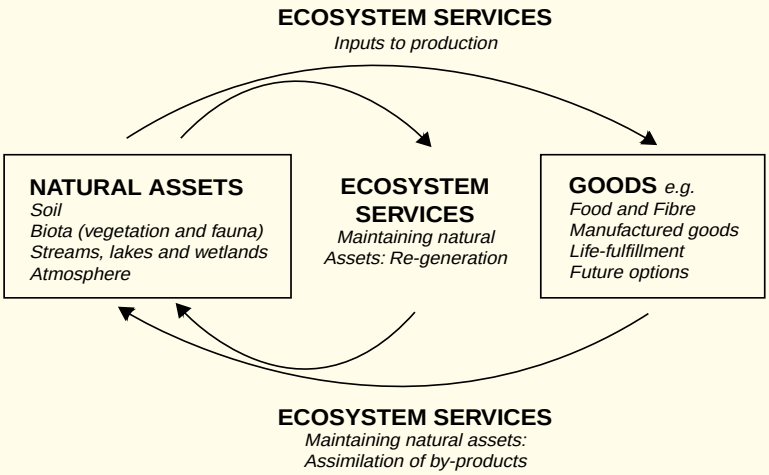

Figure 1: Ecosystem services conceptual framework.

Conceptual framework developed to illustrate the role of ecosystem services in maintaining natural assets and in supporting the production of goods of value to the Goulburn Broke catchment in Victoria.

Source: after CSIRO (2001).

pollution are threatening some habitats. Not all fisheries can be assessed as sustainable, thus posing some risk to on-going sustainability of food supply and livelihoods that depend on the sea.

Improvements are still needed because the environment provides us with essential processes that are critical to life on Earth. These processes are known as ecosystem services (Figure 1) and include soil formation, nutrient cycling, clean water supply, pollination and waste assimilation. Without these ecosystem services, the world's economy would grind to a halt.

Learning to live on this continent

Australia has responsibility for the management of 7.6 million km^2 of land, one of the largest marine areas in the world (about 16 million km^2) and nearly six million km^2 of Antarctic interests. The diversity of climatic zones ranges from tropical in the north, to temperate in the south and polar in Antarctica. Much of our flora and fauna is unique.

The landscape has been transformed to varying degrees by human activities over 60 000 years. After European settlement in 1788, the pace of change quickened so that within a few generations, large tracts of the country were irreversibly modified and degradation beyond the capacity of individuals to restore or reverse it had begun. Indigenous peoples and cultures and land management practices received little respect during this period. The agriculture, mining, and urban settlements that form the basis of the successful economy and multicultural society that constitutes Australia today have come at a cost, some of which has yet to be paid.

As knowledge of the limits of the environment's ability to recover from damage has increased, there has emerged an awareness of the irreversibility of many actions and the need to learn how to use the environment within constraints imposed by the fragile soils and climatic extremes of drought and floods. In the extensive land use zone comprising much of semi-arid Australia, for example, some excellent examples exist of stocking practices which anticipate and cope with drought (following the early Kidman model of stock withdrawal and agistment), but use of these is far from widespread.

Severe and often irreversible degradation in many local and regional environments show, however, that we have often failed to understand the constraints on development. Indigenous Australians learnt over thousands of years to live in a sustainable and spiritual relationship with this distinctive environment. There is a growing recognition that this knowledge, attitudes and experiences can inform present day land management. Nonetheless, where Indigenous peoples are responsible for control and management of extensive land areas, poor living conditions, health and lack of educational opportunities are often seen as hampering their ability to exercise effective land management practices.

Complexities of environmental issues

Managing the activities of people in a way that conserves habitats while sustaining resources and industries is extraordinarily complex and difficult. For example, the clearing of mature forests, woodlands and grasslands for economic reasons continues to raise many environmental concerns about the consequences of such actions on river water quality, soil quality and ecosystem loss in catchments and in areas far removed from the land clearing activities. Landholders frequently operate as if what they do on their property or lease is an unfettered right. Understandably, however, many local communities fear the loss of their forest heritage and tradition when the forest industry is threatened.

There is a clear need to provide incentives to landholders, communities and local governments to achieve long-term, regional solutions to the many complex problems which individuals alone cannot solve.

Caring for our country

Fundamental to better management and planning is the recognition that the environment, including our cultural and natural heritage, is everyone's business. Caring for country has long been entrenched in the traditional beliefs and practices of Indigenous Australians. The Industry Commission (1998) presents a strong case for a more formal and widespread adoption of the concept of duty of care for our lands, waters, seas and air. SoE (2001) uses this

concept as a focus to encourage all Australians to take responsibility for our actions by caring for country.

The fundamental value underlying ecologically sustainable use of resources is that current society should meet its needs in ways that ensure that the health and diversity of ecosystems, on which life depends, is maintained and does not reduce the capacity of future generations to meet their needs. Our use of resources should not cause our descendants to inherit a diminished natural and cultural heritage, less potable water, polluted air, contaminated soils, reduced variety of foods, and degraded landscapes. Environmental management in all its aspects should aim for ESD outcomes.

Landcare is an example of how an informed sector of the community has developed new attitudes and practices to land management. Such activities express what the ASEC sees as critical for Australia's future, cooperatively addressing our environmental problems so that we move towards sustainability. This task is beyond the public sector alone. All Australians need to commit themselves to achieving healthy waterways, productive soils, clean air, diversity of flora and fauna, and respect for our heritage.

The size of many of the problems demands responses that are beyond the capacity of existing institutional arrangements and individual landholders. This will be a challenge for all Australians, it will involve investments by urban Australians in the restoration of rural land, and rural Australians in a reassessment of the rights and responsibilities of landholders. We have put off this challenge for too long. This decade is the time for change, to implement the principles and objectives of ESD.

Key findings

This section presents the key findings in brief for each of the state of the environment (SoE) themes. For more detail on the scope of the issues and the findings for each SoE theme, refer to *Thematic findings* (page 22) and to the Theme Reports (see http://www.ea.gov.au/).

Atmosphere

Favourable news

Urban air quality has generally improved. Concentrations of sulfur dioxide, nitrogen dioxide and lead are not of concern in any urban area. Carbon monoxide is of concern in a few specific urban locations.

In rural and regional Australia, levels of most pollutants are well below actual or proposed standards. Sulfur dioxide emissions have decreased substantially in regional locations and are now of concern only in a few limited localities.

Accumulation of total chlorine from ozone-depleting gases in the stratosphere slowed during the early 1990s and is now declining slowly.

Public action in avoiding excessive ultraviolet radiation has increased significantly.

Unfavourable news

There has been no decline in four-hourly concentrations of ozone in urban areas, indicating that photochemical smog in those areas is still an issue.

Australians have a high per capita level of greenhouse gas emissions by world standards. Greenhouse gas emissions increased by 16.9% between 1990 and 1998.

Dust and other particulates, including woodsmoke, are of concern in some regions and localities.

Australia has the highest per capita number of hay fever sufferers in the world, but monitoring is poor with the exception of Melbourne.

Since 1910, Australian average surface temperature has increased by 0.76°C, consistent with the global temperature increase of 0.6–0.7°C.

Uncertain news

Ozone loss over Antarctica appears to have stabilised during the 1990s, although there is no direct evidence of long-term ozone recovery.

Many of the warmest years on record have occurred in the 1980s and 1990s.

A mean sea level rise around Australia during the last 100 years appears to be about 12 to 16 cm. This value is consistent with the Intergovernmental Panel on Climate Change (IPCC 2001) global estimates for the last century (10–20 cm).

Coasts and oceans

Favourable news

The fragmentation of ocean environmental planning and management has been addressed in Australia's Oceans Policy, released in 1998.

A new national management and emergency response system for introduced species is being trialed, after the Black Striped Mussel was found and eradicated from Darwin Harbour in 1999.

Bycatch Action Plans have been developed and implemented in Commonwealth-managed fisheries. In early results from trials, significantly fewer turtles were caught in the Northern Prawn Fishery as a result of using excluder devices on nets.

Local government, industry, community groups and companies now give more attention to urban stormwater management and prevention of litter pollution of coastal waters.

A further 17.6 million hectares of marine protected areas have been established since 1996, including the Tasmanian Seamount Marine Reserve.

The Natural Heritage Trust provided substantial funding for coastal and marine environment issues since 1996. There has been significant participation in local and regional environmental actions as a result of this funding.

Unfavourable news

Australian waters are more susceptible to exotic marine pests than previously thought, with threats to tropical habitats as well as to temperate habitats.

The management of the coastal environment, including catchments and estuaries, is still fragmented among many agencies at a local and state level.

Further loss of coastal habitat has occurred through the encroachment of human settlements and growth in pressures due to tourism in the coastal zone.

Pressures on Australia's coral reefs continue unabated from downstream effects of land use and other human activities.

Large nutrient loads of nitrogen and phosphorus are still being discharged to coastal and estuarine waters from both point sources and non-point sources.

Our national ability to measure the condition of coastal and marine waters through a system of standard indicators has not improved since SoE (1996).

Uncertain news

Our knowledge of the marine environment remains limited, particularly the status of many marine species and habitats and the deep sea environment.

The environmental effects of aquaculture activities are still not fully understood. Some activities have the potential to adversely affect the marine environment.

The coastal population continues to expand and the use of coastal resources is increasing. There is uncertainty in the ability of coastal ecosystems to absorb rising levels of sediment and pollutants from land uses in the coastal zone.

Land

Favourable news

Compared with SoE (1996), much of Australia has better vegetative cover because of:

- several good seasons (La Niña years) after droughts in early 1990s
- reduced sheep numbers (by 30%) since the late 1980s
- reduced rabbit numbers (up to 90%) from rabbit calicivirus disease (RCD), particularly in arid areas.

Indigenous involvement in land management has a higher profile than it did five years ago. Indigenous knowledge is being better integrated into policies and programs.

Unfavourable news

There is still a net loss of vegetative cover. Broadacre land clearing continues in Queensland and New South Wales. This is one of the key threatening processes to biodiversity. However, it is difficult to verify the land areas that have been cleared since 1996.

Land degradation, including erosion, is still a major contributor of turbidity, nutrients and pesticides to waterways, as well as loss of soil fertility.

Altered fire and grazing regimes, pests and weeds continue to affect the health of the rangelands.

Large areas of acidic and sodic soils contribute to poor water quality, secondary salinity and loss of ecosystem function.

Uncertain news

Since the 1960s, there has been a dramatic increase in pesticide use, but regular monitoring in inland waters and in groundwater is uncommon. The effects on the environment are uncertain.

Because of lack of data on the number, location and status of contaminated sites, the environmental effects associated with these sites remain unknown.

Inland waters

Favourable news

Some appropriate Government responses to management of water resources have been adopted, but implementation is patchy, and the controls may not be sufficient.

The use of biological assessment of river health has developed to the stage where national assessments of river health can be achieved.

Unfavourable news

Increasing pressures to extract surface and groundwater for human use are leading to continuing deterioration of the health of water bodies.

Surface water quality has deteriorated further in many areas because of increasing salinity.

Difficulties of managing water resources across state borders continues to hamper effective management.

The complexities of the linkages between inland waters and their catchments are often beyond the capacity of our management systems.

As more controls are placed on the use of surface waters, more groundwater is used. The overuse of surface and groundwater resources affects aquatic ecosystems. About 26% of Australia's surface water management areas are close to, or have exceeded, sustainable extraction limits.

Water use has increased from 1985 to 1996/7 by 65% and water is overused in some regions.

Water extracted for irrigation has increased by 76% from 1985 to 1996/7.

The increase in salinity in the Murray–Darling Basin and other areas is causing water quality decline and land degradation. River water in several catchments is predicted to have salinity levels that will exceed drinking water guidelines within the next 20 years.

Although it is difficult to determine, the frequency, size and persistence of harmful algal blooms in inland waters seems to have increased over the past 50 years. Algal blooms in dams cost farmers more than $30 million per year, and in rivers, storage and irrigation channels about $15 million per year.

Uncertain news

It is difficult to assess the state of inland waters nationally, because of poor data availability and patchy water quality and stream flow data in some jurisdictions.

Biodiversity

Favourable news

The protection of biodiversity values in Australia has progressed significantly with the enactment of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) being a major response since 1996.

A wide range of people and organisations is involved in protecting Australia's biodiversity (e.g. Landcare, Bushcare and Land for Wildlife). The Natural Heritage Trust has funded many of these programs since 1997.

The protection of biodiversity values now extends well beyond the reserve system into many non-reserve areas. The comprehensiveness and adequacy of the reserve system has improved.

In early 2001, the Commonwealth government declared land clearance as a key threatening process (under the EPBC Act) for biodiversity.

Urban biodiversity initiatives such as the Western Australian Government's *The Bush Forever* is a world leading program.

Industries have developed codes of practice on environmental management and employ biologists to evaluate biological values in many parts of Australia, rather than relying solely on biologists employed in public sector agencies.

Unfavourable news

Many of the key threats to biodiversity identified in SoE (1996) still persist.

Many threatening processes such as salinity, changing hydrological conditions, land clearing and fragmentation of ecosystems still pose major problems for protecting biodiversity.

The rate of land clearance rate has accelerated, with as much cleared during the last 50 years as in the 150 years before 1945. Only four other countries exceeded the estimated rate of clearance of native vegetation in Australia in 1999.

The loss and depletion of plant species through clearance destroys the habitat for thousands of other species.

Dryland salinity, one of the legacies of broadacre land clearing, is predicted to affect some two million hectares of native vegetation by 2050.

There is still limited knowledge on many biodiversity values in Australia.

Exotic organisms identified as a major threat to biodiversity in SoE (1996) remain so. Invasive species such as weeds and insects pose a serious problem.

Uncertain news

Although fire mapping has improved, the effect of various fire regimes on the conservation of biodiversity remains uncertain.

Natural and cultural heritage

Favourable news

Overall conservation of heritage improved during the reporting period 1995 to 2000.

Identification of many new heritage sites occurred through RFA surveys and some other large-scale regional studies.

A significant increase (16%, 11 000–13 000 places) in the number of heritage places listed on the Register of the National Estate has occurred during the last five years. A survey of 1250 historic places found that many were in fair to good condition.

The National Museum of Australia opened in 2001.

The Australian Museums Online Database has been established.

Most museums collections examined in a survey are in fair to good state. For the first time, collections of objects in universities have been surveyed.

The number of heritage places and landscapes that Indigenous peoples owned and managed increased slightly over the last five years. Thirteen Indigenous Protected Areas have been established since 1998 as part of Australia's National Reserve System.

The Return of Indigenous Cultural Heritage Property Program instituted in 1998 is facilitating the return of cultural property to Indigenous peoples from Australian museums and other collecting institutions.

Australia continues to be a leader in heritage practice. The Burra Charter, developed in Australia for the conservation of the cultural environment, is being used internationally.

The number of Australian World Heritage properties increased from 11 to 14 over the last five years.

Unfavourable news

The loss of heritage places continues. Several thousand heritage places identified during the RFA process have not received protection by being added to heritage registers.

In contrast to the Natural Heritage Trust's assistance to natural heritage places, there are no long-term national funding programs of similar magnitude for Indigenous or historic heritage places.

Indigenous heritage is the most extensive category of heritage in Australia and is the most neglected.

The number of Indigenous languages and the percentage of people speaking them fell during the period 1986 to 1996. Of the 20 Indigenous languages classified as strong in 1990, by 1996 only 17 are considered strong and three have become endangered. All Indigenous languages may be lost in the next 100 years.

There is no coherent agreed national definition or shared view of what constitutes cultural heritage collections, despite the National Conservation and Preservation Policy and Strategy, *Australia's Heritage Collections*, released in 1998.

Documentation systems to meet the demands of scholarly and public access to small and large museums are idiosyncratic and inadequate.

Limited resources are available for the systematic treatment of museum collections. Storage capacity is an issue for many organisations.

Uncertain news

Future heritage management arrangements and how these will affect conservation regimes are unclear.

The proposed demise of the Register of the National Estate will create gaps in the identification and conservation of heritage places.

It is difficult to gauge community support for heritage issues since there are no nationwide surveys of attitudes to, or support for, natural and cultural heritage.

Human settlements

Favourable news

Streetscapes and parks in most urban centres have been improved significantly. There has also been some revitalisation of strip and village shopping centres.

Energy efficiency in residences has improved as a consequence of a variety of energy efficiency programs and increased use of insulation in buildings.

The reuse of treated wastewater and stormwater is increasing, but is still at low levels.

Domestic water use per capita declined for most large urban centres during the 1990s because of water pricing, consumer education, use of water-saving appliances and higher residential densities (linked to lower outdoor water use).

Unfavourable news

Existing pressures from human settlements are not consistent with a sustainable environment.

Uneven distribution of wealth in our human settlements means that some communities (e.g. Indigenous communities and small rural towns) do not always have the capacity to look after their environment.

Most indicators of resource consumption continue to outpace population growth. An example is personal mobility, as measured by vehicle kilometres travelled, which is increasing in metropolitan areas.

There is a high and increasing per capita energy usage in human settlements leading to increase in greenhouse gas emissions, particularly through electricity generation and transport usage.

Environmental noise and its effects on residents are increasing as a result of trends such as increased residential density, traffic volumes and the 24-hour city.

Uncertain news

Reurbanisation has resulted in the growth of population and residential densities in the inner suburbs of Australia's major cities, reversing a pattern of consistent decline since early post-World War II. However, the overwhelming trend remains suburbanisation (the reverse process).

The volume of waste appears to have stabilised at a level which is high by international standards, and there has been a recent rapid increase in the quantity of hazardous waste generated.

The uptake of recycling of waste is mixed, depending on the waste streams. In some States, and for particular waste streams, recycling rates are approaching disposal rates. Waste reduction targets generally have not been met.

Introduction

The State of the Environment Report in 1996 (SoE 1996) provided the first independent and comprehensive account of the Australian environment and provided an excellent foundation for the ASEC to produce this State of the Environment Report (SoE 2001).

The membership of the ASEC and its terms of reference are given in *Appendix 1*. SoE (2001) is drawn from seven commissioned theme reports, summarised in the *Thematic findings*. The theme reports are: atmosphere, coasts and oceans, land, inland waters, biodiversity, natural and cultural heritage, and human settlements (see http://www.ea.gov.au/soe/). Each theme report used a set of environmental indicators (*Appendix 2*) to report their findings. An expert reference group supported each theme author and the reports were peer reviewed. Contributions to SoE (2001) are summarised in *Appendix 3*.

The conceptual structure of the modified 'pressure–state–response' model of the Organization for Economic Cooperation and Development was used in SoE (1996), and also underpins SoE (2001) (see *Appendix 1*). For SoE (2001), more emphasis has been placed on implications of conditions, pressures and responses consistent with the terms of reference.

The overall message and key findings of SoE (2001) have been developed by the ASEC following a review of the theme reports and their synopses by ASEC members (see *Thematic findings*). The 2001 Report also contains the views of the ASEC on the context within which Australia's environment is managed and its views on future directions.

The principles of ESD are now well recognised in Australian legislation, including the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. Although there is some legislation to protect cultural heritage, traditional Indigenous rules for care of the land and its sacred places, and the philosophy enshrined in the Burra Charter of the International Council on Monuments and Sites (ICOMOS) Australia, form a good basis for conserving cultural heritage. These principles have broad community and industry support and they form a powerful philosophy for use in both environmental and heritage management.

Sound information and understanding of issues are vital to enable Australians not only to feel, but also to be, part of a society capable of managing or ameliorating the changes which affect our distinctive environment. This Report offers Australians an understanding of the Australian environment and highlights how they might relate, individually and collectively, to the major issues affecting their country. Australians should strive to pass on to future generations a healthier environment than they inherited.

State of the environment reporting

State of the environment reporting aims to support decision making at all levels of society. It provides reliable information that can foster a more integrated and longer term perspective to environmental management. Four objectives were used by the ASEC for these purposes for SoE (2001). They are to:

- provide accurate, up-to-date and accessible information about environmental conditions, and where possible, trends for the Australian continent, surrounding seas and Australia's external territories
- increase public understanding of issues related to the Australian environment
- provide an early warning of potential problems
- report on the effectiveness of policies and programs designed to respond to environmental change.

SoE reporting is made more complex by the challenge of analysing incomplete or inconsistent data sets. Since 1996, there has been a significant improvement in the data available for SoE reporting involving many organisations. These include the Cooperative Research Centres (CRCs), the National Land and Water Resources Audit (NLWRA) and the Australian Greenhouse Office (AGO). However, major problems of access to data and consistency of standards and methods of data compilation still exist. Development of adequate and effective responses to environmental challenges is often hampered by the lack of data and information with which to portray accurately how the Australian environment is changing over time.