

# OECD Environmental Performance Reviews

## AUSTRALIA



## ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

*This work is published on the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Organisation or of the governments of its member countries.*

Also available in French under the title:  
**Examens environnementaux de l'OCDE**  
AUSTRALIE

© OECD 2007

---

No reproduction, copy, transmission or translation of this publication may be made without written permission. Applications should be sent to OECD Publishing: [rights@oecd.org](mailto:rights@oecd.org) or by fax (33 1) 45 24 13 91. Permission to photocopy a portion of this work should be addressed to the Centre français d'exploitation du droit de copie, 20, rue des Grands-Augustins, 75006 Paris, France ([contact@cfcopies.com](mailto:contact@cfcopies.com)).

---

## FOREWORD

The principal aim of the OECD's Environmental Performance Reviews programme is to help *member countries improve their individual and collective performances in environmental management* with the following primary goals:

- to help *individual governments* assess progress;
- to promote a continuous policy *dialogue among member countries*, through a peer review process; and
- to stimulate *greater accountability* from member countries' governments towards their public opinion, within developed countries and beyond.

Environmental performance is assessed with regard to the degree of achievement of *domestic objectives and international commitments*. Such objectives and commitments may be broad aims, specific qualitative goals, precise quantitative targets or a commitment to a set of measures to be taken. Assessment of environmental performance is also placed within the context of historical environmental records, the present state of the environment, the physical endowment of the country in natural resources, its economic conditions and demographic trends.

These systematic and independent reviews have been conducted for all member countries as part of the first cycle of reviews. The OECD is now engaged in the second cycle of reviews directed at *promoting sustainable development*, with emphasis on implementation of domestic and international environmental policy, as well as on the integration of economic, social and environmental decision-making.

The present report reviews environmental performance of Australia. The OECD extends its most sincere thanks to all those who helped in the course of this review, to the representatives of member countries to the Working Party on Environmental Performance, and especially to the examining countries (Austria, New Zealand, United Kingdom and United States) and their experts. The OECD is particularly indebted to the Government of Australia for its co-operation in expediting the provision of information and the organisation of the experts' mission to Australia, and in facilitating contacts with many individuals both inside and outside administrative and governmental structures. The present review benefited from grant support from Japan and Switzerland.

# 1

## CONCLUSIONS AND RECOMMENDATIONS\*

This report examines Australia's progress since the previous OECD Environmental Performance Review in 1998 and the extent to which the country has met its *national objectives and international commitments* regarding the management of the environment and natural resources. The report also reviews Australia's progress in the context of the OECD Environmental Strategy,\*\* and compared to the recommendations of the 1998 OECD review. Progress has stemmed from environmental and economic decisions and actions by federal, state/territory and local authorities, as well as by enterprises, households and non-governmental organisations. 45 recommendations are made that could contribute to further environmental progress in Australia.

Since 1998, *Australia's GDP has grown steadily and by some 30% overall*. Real per capita GDP is now above the OECD average. Australia is a fully developed, highly urbanised, federal country with growing links to many developing and developed countries, in particular in the Asia-Pacific region. The country's exports contribute about 20% of GDP and natural resource-based exports (principally from mining and agriculture, with an important contribution from fishing) account for over half of the total. Australia is an ecologically unique continent, characterised by mega-biodiversity. *Major sources of pressure* on the environment and natural resources – including mining, agriculture, transport, manufacturing and energy production and consumption – expanded during the review period. With relatively low population density, *natural*

\* Conclusions and Recommendations reviewed and approved by the Working Party on Environmental Performance at its meeting on 27 June 2007.

\*\* The following objectives of the OECD Environmental Strategy for the First Decade of the 21st Century are covered in the Conclusions and Recommendations: maintaining the integrity of ecosystems (Section 1), decoupling of environmental pressures from economic growth (Section 2) and global environmental interdependence (Section 3).

*resource management-related issues* continued to dominate the environmental policy agenda during the review period.

*State/territory and local governments* have the main responsibility for addressing issues such as water, air and waste management, land use, transport planning and natural resource management. But as environmental pressures and issues have grown in international and national importance during the review period, debate has grown about the role the Commonwealth government should have in protecting the environment. This has resulted in greater emphasis on intergovernmental co-operation within Australia on environmental matters, as well as on sharing of responsibilities with civil society.

Looking to the future, to face its *environmental management challenges effectively*, it will be necessary for Australia to i) strengthen environmental policies and their implementation in the interest of promoting a level national playing field and improving efficiency, where appropriate; ii) further integrate environmental concerns into economic and sectoral decisions and iii) further develop international environmental co-operation.

## 1. Environmental Management

### *Strengthening the implementation of environmental policies*

The *institutional framework* for environmental management has improved over the review period, in part due to restructuring of responsible government agencies at the Commonwealth and state/territory levels. The 1999 Environmental Protection and Biodiversity Conservation Act (henceforth the EPBC Act) codified the Commonwealth government's powers to regulate activities deemed likely to significantly impact environmental matters of national significance, and strengthened environmental impact assessment of major development projects. *Load based licensing* of pollution discharges has been improved and expanded. The use of *economic instruments*, particularly tradable quotas, to achieve environmental management objectives has greatly expanded, propelled in part by the National Market-Based Instruments Pilot Program. *Voluntary and partnership approaches*, including environmental management systems implemented by industry, have played a significant role in reducing environmental pressures. Initiatives have been launched to increase the efficiency of water use in the mining sector, and to encourage consumers to buy more water efficient products (e.g. through eco-labelling). Commonwealth government purchasing and operations have been greened and many ministries implement

environmental management systems. Similar progress has been achieved by state/territory governments.

In spite of these efforts, *capacity of environmental agencies* is not adequate to address all of their responsibilities. The existence of different sets of *environmental legislation* at the state/territory level has many benefits, but also requires extensive inter-governmental co-ordination and co-operation, and multiplies regulatory costs. Regulation of large stationary sources is not backed up with sufficient *inspection and enforcement*. Serious breaches of regulation are inadequately prosecuted in some jurisdictions. The *pricing of environmental services* is still far from levels necessary for full cost recovery in most cases, despite recent progress. The quality of environmental impact assessments is highly variable, especially at the state/territory level. *Voluntary measures* often do not include meaningful compliance mechanisms or monitoring.

*Recommendations:*

- strengthen *enforcement* by making it easier to take action against operations, especially large pollution sources which breach the regulations;
- further expand the use of *economic instruments*, assuring the more complete application of the polluter pays and the user pays principles for water, energy, and waste management;
- improve and expand *corporate environmental and sustainability reporting*, and increase the transparency of voluntary agreements with industry;
- expand the use of *performance and cost-effectiveness assessment* for operation of government agencies at the Commonwealth and state/territory level;
- continue to *harmonise legislation and regulation* and improve co-operation between Commonwealth and state/territory governments, with the aim of establishing, where appropriate, an environmental level playing field within the country.

*Water resources management*

The 2004 adoption of the *National Water Initiative* (henceforth “the NWT”) reinvigorated the reform of the water management framework that Australia launched in 1994. With the deployment of very large government funds, real progress was made towards implementing the reforms; in particular, land

property rights and *water access entitlements* were separated in all states and territories, and the institutional arrangements for water trading were put in place. The new arrangements integrate the environmental constraints imposed by the continent's predominantly dry and variable climate, by setting *environmental flow regimes* at levels deemed to protect aquatic ecosystems, and by defining water use rights as shares of the "consumptive pool" rather than as absolute amounts. The country-wide application of *catchment management bodies* by state and territory governments is helping to better integrate land and water management. Accountability has been improved by separating the responsibility for water service delivery from that of regulatory oversight. Implementation of a cap on water abstractions from the *Murray-Darling river system* has progressed, even as severe drought has gripped the country since 2000. Water salinity in the Murray River has been kept in check thanks to careful management. Progress has been made towards a nationally consistent pricing structure for drinking and irrigation water, and water utilities in some major urban areas are close to achieving full cost recovery.

*Recommendations:*

- steadfastly *implement all aspects of the National Water Initiative* (in particular: *full cost recovery* of water services and irrigation water delivery; *rationalisation of water allocation* in stressed water basins, allocation of adequate share of water savings to environmental flows; removal of remaining administrative barriers to *interstate trading*; strengthening of the *integrated management* of ground and surface waters; wide application of "water sensitive" urban design practices);
- ensure that all new investment in *water conservation infrastructure* is subject to prior economic analysis, and that landholders in the Murray-Darling Basin face consistent rules for obtaining water for irrigation purposes;
- expand the capacity of *regional natural resource management bodies* to manage river health, and to assure minimum environmental flows;
- further develop national strategies for responding to the likely *long-term effects of climate change* on available water resources, using optimisation analysis and exploring different scenarios;
- promote *public awareness and understanding* of the economic and environmental importance of improving the efficiency of water allocation and consumption.

However, there remain a number of considerable water management challenges, particularly as overall water consumption is still increasing. Important river systems and groundwater aquifers remain *over-allocated* and the incidence of blue-green algae blooms has not diminished. Many larger estuaries suffer chronic algal blooms, leading to *anoxic areas* where aquatic ecosystems are disturbed. Poor coastal water quality threatens some nearshore parts of the Great Barrier Reef. Old irrigation schemes, and to a lesser extent urban water supply systems, continue to suffer *large water losses* due to leakages and evaporation. Much work still needs to be done for the NWI to take full effect at the *grass roots level*. *Full cost recovery* of irrigation water delivery has not yet been achieved. Some barriers to water trading (e.g. among states/territories, between urban and water user) still exist. *Water prices* for urban consumers remain low and thus do not encourage conservation or investment in new sources of supply. The potential for water re-use and recycling has yet to be fully exploited. Despite good progress in improving monitoring and reporting through *water accounting* and the National Land and Water Resources Audit, there is still some distance to go before policy makers and water managers dispose of nationally coherent information for decision-making.

#### *Air quality management*

During the review period, Australia adopted national air quality standards which set ambient concentration limits for six conventional pollutants, through a *National Environment Protection Measure (NEPM)*. Ambient concentrations of carbon monoxide, sulphur dioxide, nitrogen dioxide, and lead are generally below NEPM levels. Air quality remains good, overall, in Australia, although there are urban areas and local hotspots of concern (e.g. adjacent to large stationary sources, highways). The regulatory framework has been further strengthened through an advisory reporting standard on fine particulates. As recommended in the 1998 review, Australia has developed a *National Pollutant Inventory* and has begun making related data publicly available. Most Australian cities experienced improvements in urban air quality, especially for concentration of lead, SO<sub>x</sub> and CO. A national air quality database has been established. Unleaded petrol has been mandatory for new vehicles since 1986, and the phase-out of leaded fuel was completed in 2002, rather late compared to other OECD countries. Vehicle emission standards have been in place since the early 1970s, and a voluntary agreement has been concluded to raise fuel efficiency standards by 2010. The publication of consumer information related to vehicle fuel efficiency and greenhouse gas emissions intensity is now required. *Fuel quality standards* for sulphur and benzene content have been tightened.



*Recommendations:*

- redouble efforts to cut *emissions from the transport sector*: for instance, by applying market-based instruments to stimulate cleaner vehicles fleets and to improve the balance of transport modes (e.g. congestion and road pricing, fuel and vehicle taxation, parking charges);
- further strengthen federal and state/territory *data on air pollution control* at major sources (e.g. stationary, mobile sources), accelerating the publication of monitoring data and aggregated national state of the environment reports;
- conduct a national study on the *costs and benefits of air emissions*, including all major sources;
- continue to develop the *national pollutant inventory* to support analysis of trends, costs and benefits of air pollution control, modelling of air pollution dynamics and control strategies;
- complete the incorporation of *fine particulates* in the Ambient Air Quality NEPM, and review the role of intra and interstate atmospheric transport of fine particulates in concentrations in urban areas.

However, a number of significant air quality management challenges remain. In certain areas, ambient concentrations of *fine particulates and ozone* exceed the allowable national limits, with the worst examples arising from events such as bushfires. Adjacent to some specific *smelters and power plants*, air pollution hotspots pose serious local health risks. Extrapolating from experience and studies in other OECD countries, significant health benefits could be derived from further air pollution abatement and control. Despite recently launched energy efficiency and renewable energy programmes, energy-related emissions of conventional pollutants and GHGs have continued to grow with GDP. *Emissions intensities* (i.e. *emissions per unit of GDP*) of SO<sub>x</sub>, NO<sub>x</sub> and CO<sub>2</sub> are the highest, or among the highest, in the OECD. Road transport is a major source of urban air pollution, and as the number of vehicles and vehicle-kilometres travelled continues to rise, so do related emissions. Efforts are needed to address the growing emissions from transport. Little consideration has been given to the long distance transport of some traditional air pollutants and heavy metals (e.g. mercury, lead) and their *impact on ecosystems*, despite the often-cited fragility of the continent's ecosystems. Australia appears to be on track to meet its Kyoto commitment. While GHG emissions from energy-related sources have increased by 36% since 1990, net emissions have increased by only 2%. This was primarily due to changes and

improvements in land use practices. Future progress will depend on implementing policies to reduce emissions from across all sectors.

### *Nature and biodiversity management*

Australia substantially increased its *efforts to protect biodiversity* during the review period. The terrestrial area protected by formal reserves increased by 30% during the review period, and marine protected areas grew by 66%. Altogether, over 10% of Australia's landmass is now protected. Many nature protection activities are now *organised on a national scale*, such as the National Reserve System, the National Framework for the Monitoring and Management of Australia's Native Vegetation or the National Weeds Strategy, and the same will soon be true for *marine protected areas*. The delineation of bioregions which classify the biodiversity value of various ecosystems has helped to take a more strategic approach to nature management, and to identify remaining gaps in the reserve system. The devolution of the delivery of some national programmes to a regional or landscape scale has led to greater engagement of local communities and citizen groups. The EPBC Act has given renewed emphasis to species recovery and threat abatement planning. All Australian governments have agreed to stop loss of native vegetation through *land clearing*, long the chief threat to biodiversity in Australia. Innovative *market-based instruments* for the protection of biodiversity on private land (e.g. BushTender, tradable bio-diversity credits), are being tested in several states. Substantial Commonwealth funding through the Natural Heritage Trust has effectively leveraged state/territory and local funding including for nature management activities.

Even so, there remain several areas where efforts are not commensurate with the challenge. *Downward trends* in the conservation status of Australian species still dominate positive ones; some major *pressures* on Australia's mega-biodiversity (e.g. weeds and invasive species, climate change) have not eased during the review period. Overall, conservation efforts have not been proportional to the *economic benefits* derived through tourism and environmental services from nature and biodiversity conservation. The *resources* available for the management of the National Reserve System have not kept pace with the expansion of protected areas. The National Reserve System does not yet meet the test of being comprehensive, adequate and representative. A sharp increase in the number of species recovery plans and threat abatement plans has revealed the need to co-ordinate and streamline, perhaps through multi-species approaches. The integration of biodiversity concerns into the catchment management plans of the regional natural resource management bodies is still patchy. While

biodiversity considerations are sometimes taken into account in *land use planning decisions*, as a rule there is much room for improvement. Although the existence of the Australian Biological Resources Study and the creation of the National Land and Water Resources Audit are important steps in the right direction, *lack of policy-relevant information*, including taxonomic and trend data, still hampers biodiversity and nature conservation.

*Recommendations:*

- further increase the *terrestrial and marine area* under formal protection while progressing towards the objective of a comprehensive and representative National Reserve System;
- persevere with efforts to protect, *manage and restore* wetlands;
- strengthen the recovery of *threatened species and ecological communities* through co-ordination of recovery plans and pest management plans on the regional level;
- ensure that *regional natural resource management (NRM) plans* give due consideration to biodiversity issues and are co-ordinated with local authority land use plans;
- continue to develop and apply *market-based instruments* to protect biodiversity values on private land, as appropriate; ensure effective off-reserve conservation;
- enhance the collection of taxonomic data and collation of *nationally coherent information*.

## 2. Towards Sustainable Development

### *Integration of environmental concerns into economic decisions*

The principles of “*ecologically sustainable development*” (ESD) have become embedded in the public policy culture across federal government and many state/territory and local governments, with substantial evidence of the effective integration of ESD dimensions and concepts within policy development. Australia’s *agricultural sector* remains among the least subsidised in the world. The *energy intensity* of the economy has diminished by 10% since 1998. There has been an *increased uptake of recycling*, not only of materials but also of water, although there is still much room for progress. Water

“cap and trading” systems, to the extent they incorporate appropriate environmental flow provisions, are on track to give essential price signals to water users and land managers.

*Recommendations:*

- make concerted efforts to *decouple environmental pressures from economic growth*, especially those pressures from the energy, transport and household sectors, including urban growth;
- expand the use of *market-based instruments* to advance ecologically sustainable development, with particular attention to end-user energy prices to promote conservation, to limit emissions, to enhance long-term energy security, and (in the case of transport) to reduce land development pressures;
- continue to protect the ecological integrity and *tourism potential of key natural assets* such as the Great Barrier Reef, by targeted measures (such as exit assistance to economic actors placing undue pressure on these resources);
- strengthen policies and measures to enhance *energy efficiency*; reduce the energy sector’s net greenhouse gas emissions, including through more development of renewable energy sources;
- in assessing policies, evaluate the contributions of measures against *multiple sustainability objectives*; for example, ensure that waste management measures are environmentally and socially effective and economically efficient.

Despite this progress, indicators of actual integration of environmental concerns into sectoral policies are weak. *Prices* for energy, land development, water, congested roadspace and waste disposal are too low to internalise environmental costs, providing little incentive for efficiency. It is not clear whether some of the Commonwealth and state/territory expenditure relating to water resources (e.g. Government Water Fund, drought relief payments, water saving proposed investments) will be institutionalised or are seen as transitional financial assistance. Concerning transport, 40% growth in *road freight traffic* over the review period has increased associated impacts on air quality (especially ozone and fine particles), runoff to water, etc., despite tightened fuel quality and vehicle emissions standards. *Solid waste generation* per capita remains high compared with most OECD countries, and economic instruments remain underutilised in *waste management*. Inadequate attention has been paid to *the*

*design of expanding urban areas* to optimise their multiple environmental, social and economic functions, particularly with respect to infrastructure development, energy use, carbon emissions, and health consequences (from air pollution and the discouragement of physical activity). This is particularly a problem in coastal areas, such as along the eastern seaboard.

### *Agriculture and environment*

During the review period, Australia made considerable efforts to reduce the environmental footprint of its agricultural sector. These efforts included a fundamental *reform of the water sector*, support for the states and territories to implement a regional approach to natural resource management, and Commonwealth and state/territory funding made available through various channels. The extensive reforms being introduced under the *National Water Initiative*, notably water markets and full cost pricing, can be expected to considerably improve the *efficiency of irrigated agriculture* and also return water to the environment. The unflagging continuation of these efforts should be given a high priority. Almost all regional plans and investment programmes have been accredited by the Commonwealth and relevant state/territory governments; if well implemented, they will do much to make agriculture more sustainable. At the farm level, the *Landcare programme* has contributed to fostering a *stewardship ethos* and promoting more environmentally friendly land management practices, with almost 40% of landholders involved. In 2004, all Australian governments agreed to stop loss of native vegetation through *land clearing*. Governments are also developing and pilot-testing market-based instruments to protect and expand native vegetation on private land. The range of strategic programmes funded by the Commonwealth and state/territories, was and continues to be a catalyst for progress.

Despite these gains, there is much more to be done to improve the sustainability of the agriculture sector in Australia. This will require dealing with a number of *legacy issues*, including the accumulated negative effects of some agricultural practices (e.g. over-grazing, land clearing, inefficient irrigation), which have aggravated soil salinity and acidity, erosion and pests damage. Doing so will be made even more difficult by the projected impacts of climate change. The success of the plans and programmes underway will rely very heavily on the performance of the natural resource management bodies, some of which are relatively new and untested, as well as the introduction of proper *economic incentives and prices* concerning water, land and ecosystem resources. The problems of *salinity and acidity* might become more widespread if the ambitious

measures underway are not fully pursued. The use of *nitrogenous fertilisers* has risen during the review period, and in intensively farmed regions, fertilisers cause eutrophication of both fresh and marine waters. There is a dearth of policy-relevant information about trends in the use of *pesticides* and about the levels of pesticide residues in food, organisms and ecosystems. Despite recent improvements in some regions, the efficiency of irrigation water use could be improved by reducing *leakage and evaporation* from channels and reservoirs. With severe droughts affecting the country since 2000, there have been recurrent and large drought compensation payments. The difficult economic question for some of the farmland is whether it may be more cost-effective to induce farmers to retire from farming entirely in order to capture the benefits of the biodiversity, natural heritage and tourism potentials of restored land.

*Recommendations:*

- ensure that the 56 new regional *catchment management bodies* develop the *capacity* (good governance, funding, know-how, training, institutional support) to achieve the outcomes they are expected to deliver, in partnership with the agricultural industry;
- further develop and operationalise the *economic framework for sustainable agriculture*, using *market-based instruments* (taxes, charges, trading) and economic analysis;
- assure independent evaluation of the *effectiveness of voluntary approaches* (e.g. landcare, promotion of EMS); and ensure that the *lessons learned* with good land and environmental management practices are shared across the country;
- strengthen measures to reduce *irrigation water losses* and the runoff of *excess fertilisers and pesticides* to the environment;
- develop *information* on agrochemicals use and residues and more broadly on the environmental impacts of agriculture;
- evaluate the economic risks to agriculture associated with projected climate change, and take cost-effective measures to enhance the sector's capacity to *adjust to expected effects of climate change*, and continue to develop and expand the capability of the agricultural sector to reduce greenhouse gas emissions;
- where agriculture can no longer be sustainable, assist affected landholders and communities in the *transition to other land uses*.

### *Integration of environmental and social decisions*

There are a number of positive trends at the social-environment interface. Most people enjoy *high life-expectancy* and wellbeing, in part associated with a healthy environment. Good levels of community participation in natural resource management have been sustained, and recently enhanced through the introduction of Catchment Management Authorities. *Environmental education* has been mainstreamed into school curricula. Public access to environmental information has improved, with enhanced *state of the environment reporting*, the establishment of the National Pollutant Inventory, and the creation of numerous environmental information portals. Public awareness of environmental concerns has been raised through state and local *public education campaigns*, and through the routine provision of environment-related consumer information (e.g. on water bills, through eco-labelling of consumer goods). Multi-national and primary industries have progressively become more engaged in sustainability reporting, although Australian companies trail those in many OECD countries, in terms of such reporting.

#### *Recommendations:*

- harmonise the collection and reporting of key *environmental information and statistics* at the state/territory level so as to facilitate national level aggregation and reporting;
- improve integration of “whole of government” objectives concerning *indigenous peoples* into natural resource management programmes;
- monitor the *distributional impacts of market-based approaches* to environmental management, and take steps to ensure equity (e.g. rural/urban, ethnic minorities, socio-economically disadvantaged);
- continue to use *public consultation mechanisms* to ensure that land use planning takes into account the views of communities and stakeholders, clearly indicating the timing, scope and right of appeal at all stages up to the final decision;
- ensure that *vocational and continuing education* curricula include training in how to minimise the potential environmental impacts of business operations;
- continue to prioritise the development of the *environmental services industry* and to integrate environmental objectives into government procurement and operations policies.

Further progress is needed in a number of areas. Aggregation of *environmental information* collected by the various levels of government (local, state/territory, national) is hindered by inconsistencies in data collection, lack of standard indicators and lack of co-ordination. Economic data related to environmental management is sparse (e.g. environmental expenditure, environmental employment, environment-related taxes, water prices). *Indigenous peoples'* life expectancy remains significantly lower than the national average, and this is associated in part with Indigenous people receiving below average delivery of environmental services. There is still considerable scope for better integration of environmental and natural resource management objectives in the "whole of government" approach to improving indigenous people's quality of life. Environmental pressures from *land development* continue to increase with urban sprawl, and the consideration of zoning and development decisions at the local level do not guarantee that long-term social and environmental values are adequately taken into account. *Vocational training* programmes give inadequate attention to imparting needed environmental management skills.

### 3. International Commitments and Co-operation

Australia has made strong progress towards its international environmental commitments during the review period. Concerning *GHG emissions*, the country has established a comprehensive *GHG accounting system* and has reduced the GHG intensity of its economy by 11% during the review period. Australia is on track to meet its Kyoto target, despite not having ratified the Protocol. Energy efficiency improvements have been promoted through the establishment of *efficiency standards* for appliances and buildings, and the introduction of fuel efficiency labelling on new motor vehicles. Vulnerable to stratospheric ozone depletion, the country has complied, on time or early, with all deadlines for the phase-out of *ozone-depleting substances* under the Vienna Convention. It also actively and effectively assures compliance at its borders with CITES and Basel Convention restrictions related to trade and environment. Control of *marine pollution* and oil spill risk is effective, with the number of oil spills down, OPRC arrangements regularly tested, and the highest rate of *port state control* within the Tokyo MOU area. Concerning marine fisheries, efforts against illegal, unreported, and unregulated fishing have been reinforced, and inspection increased. *Fishing capacity* has been reduced and regulated, and the on-board observer system expanded. Australia has phased out and destroyed chemicals banned under the Stockholm Convention and has lent technical assistance to neighbouring countries in the Pacific to do likewise.



However, challenges still abound. The country's *greenhouse gas emissions intensities* (per unit GDP, per capita, per TPES) are the highest among OECD countries. Furthermore, greenhouse gas emissions from several major source categories (e.g. electric power plants, industrial processes) are still growing. Discharges to marine waters from land-based sources, recreational and fishing boats are inadequately controlled, and are the main contributors to degradation of coastal water quality. Separate charges for *waste reception at ports* create a perverse incentive for ships to discharge wastes at sea. Concerns remain about fishing practices, including bottom trawling, which have destructive impacts on vulnerable marine ecosystems in the Australia EEZ. A number of *fish stocks are still overexploited* (e.g. orange roughy, gemfish and school shark). Although there has been a recent tightening, fines and sanctions for CITES offences remain rather low, compared to the potential gains of non-compliance. The country is conscientious about integrating environmental concerns and priorities in its *official development assistance*, but official development assistance as a per cent of gross national income (0.3% in 2006) remains below the Rio target (0.7%).

*Recommendations:*

- introduce a *price on carbon* through a national greenhouse gas emissions trading scheme and/or a carbon tax;
- assess the extent of *marine pollution* from land-based and marine sources, and implement cost-effective measures to limit their discharges;
- progressively increase the ratio of *Official Development Assistance/Gross National Income* towards the Rio target (0.7% of GNI), ensuring that environmental objectives are comprehensively met;
- introduce *integrated port service charges*, that include waste reception fees, to remove the incentive for ships to discharge wastes at sea;
- review to what extent sanctions and fines used to implement *Multilateral Environmental Agreements regarding trade and environment* are dissuasive, and adjust if deemed necessary;
- continue efforts towards the protection of *vulnerable marine habitats* and sustainable management of *commercial fisheries* on a regional and global level.