DEPARTMENT OF THE ENVIRONMENT AND HERITAGE

SUBMISSION TO THE PRODUCTIVITY COMMISSION INQUIRY INTO THE IMPLEMENTATION OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT BY COMMONWEALTH DEPARTMENTS AND AGENCIES

Our Vision

A natural and cultural environment
valued, enhanced and protected
in harmony with the nation's social and economic goals

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EXECUTIVE SUMMARY

In recent years there has been a substantial increase in attention paid to environmental considerations in decision making, policies, programs and activities of Commonwealth departments.

There have been a number of success stories in the implementation of ESD. These include forest policy, water reform and the Natural Heritage Trust. Successful action has been driven by crises in natural resource management, and powerful incentives to bring key stakeholders to the table.

Implementation of the new Commonwealth environment legislation will give further impetus to ESD.

All government departments and agencies are responsible for implementing ESD. The coordinating role that the Department of Environment and Heritage has been asked to play in areas such as climate change reflects the view that the environment must be accepted as part of the mainstream policy process.

Effective ESD implementation depends on the availability of good information, incentives and feedback mechanisms for decision makers.

Increased efforts are required to clarify the policy framework for ESD. Mechanisms to promote ESD implementation which warrant further examination include the application of an environmental duty of care, environment management systems, output based management, and an ESD Commissioner.

INTRODUCTION

In recent years there has been a substantial increase in attention paid to environmental considerations in departmental decision making, policies, programs and activities. This has been driven partly by the increasing domestic concerns and awareness about Australia's environment, and partly by international developments such as action on climate change.

Since 1992 the National Strategy for Ecologically Sustainable Development (NSESD) has provided substantial impetus to efforts to integrate environmental considerations into departmental decision making, policies and practice. The goals and principles of the strategy have achieved wide acceptance. The challenge is to translate these goals and principles into specific actions and outcomes on the ground.

There have been substantial developments in government approaches to environmental issues during the 1990s. These include:

- increasing focus on biodiversity conservation as a major goal, with implications for land, water and marine management;
- increased efforts to develop natural resource management for multiple uses, for example in forestry and fisheries;
- clarification of the roles and responsibilities of different spheres of government for the environment;
- greater emphasis on the efficiency and cost effectiveness of policy.

But there are a number of remaining issues in implementing ESD:

- integration of economic, environmental and social policy;
- policy coordination and the role of the Department of the Environment and Heritage;
- the policy mix and cost effectiveness;
- information and indicators;
- outcomes based management;
- translating strategies into results on the ground;
- community understanding and support for ESD.

The remainder of this submission examines these issues.

POLICY INTEGRATION

Conceptual issues

Since the 1960s there has been substantial growth in the understanding of the environment. As scientific understanding has increased it has become clearer that ecological services are unusual because of the nature and extent of their interrelationships. For example, the loss of one element of the food chain in a fishery can lead to the collapse of the entire chain. Natural capital is different from other forms of capital in that it cannot be simply replaced or substituted. Also any irreversible effects of depletion of natural capital may only appear in the very long term. These features of ecological services have prompted the inclusion of the precautionary principle and intergenerational equity as key principles in the National Strategy for Ecologically Sustainable Development.

Policy makers are often confronted with decisions involving short term and measurable economic benefits, and long term uncertain environmental costs. The precautionary principle requires that where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The application of the precautionary principle can mean either curtailing development or undertaking significant precautionary expenditures to protect the environment. This can lead to practical difficulties in applying the precautionary principle. Adaptive management approaches are being increasingly used in natural resource management to respond to evolving scientific understanding.

The NSESD also requires policy makers to provide for equity within and between generations. These two objectives may conflict to the extent that economic growth which increases the scope for equity now, may reduce equity between generations, either through irreversible environmental or heritage impacts, or by impacts which can only be reversed at a high cost. There is considerable uncertainty about the direct impact of current economic activity on the future environment, and the feedback loops between economic growth, investment, poverty alleviation and pressure on the environment. There is also considerable debate about the value of environment and heritage assets.

Providing practical and timely advice, which takes full account of the complexities of ESD implementation, is a major challenge for departments.

Examples of policy integration

There have been a number of positive examples of the implementation of ESD in areas such as forest policy, water reform, Natural Heritage Trust, and the management of the wet tropics. Further details are in the attached case studies 1 to 4.

These successes have not come easily. They have required grappling with a complex and interlinked set of problems including loss of biodiversity and

destruction of habitat, degradation of land and inland waters and global climate change. The complexity of the links between these issues mean that it is difficult to clearly define objectives, and integrate policies. On the positive side, gains in one area can lead to gains in others. For example tree planting not only reduces salinity, but may improve habitat, water quality and tourism. In other cases it is difficult to reconcile economic, social and environmental objectives, as in the case of energy market reform and energy taxation.

The results are not easy to replicate. These cases also indicate that ESD implementation is a major task, even in favourable circumstances.

For example, the Regional Forests Agreement process demonstrates that it is very difficult to get all the data needed for implementing ESD goals and principles. There is also a great deal of effort required in bringing interest groups to the table and gaining their cooperation and support. It is particularly difficult to effectively integrate social considerations into policies and programs, both because the goals are hard to quantify and because data is sparse.

These results have only been achieved where there has been:

- a sense of crisis with a real threat to community well being if no action was taken;
- a perception that environmental and economic outcomes are strongly linked;
- powerful incentives to bring key stakeholders (including the States) to the table;
- effective cross Portfolio mechanisms; and
- a substantial budget.

The incentives for State cooperation with the Commonwealth in terms of financial assistance or a reduction of Commonwealth involvement through accreditation have been a critical element of success.

POLICY COORDINATION AND THE ROLE OF THE DEPARTMENT OF THE ENVIRONMENT AND HERITAGE

ESD integrates environmental, economic and social policies which involve a wide range of government departments and agencies. All departments have responsibilities for implementing ESD, although the degree varies. The Department of the Environment and Heritage works with others to achieve ESD.

In 1997-98 the Department worked with other departments to advance key government priorities such as climate change, the Natural Heritage Trust, environmental law reform, oceans policy and the development of national environment protection measures. The coordinating role that the Department has been asked to play in a number of these areas reflects the view that the environment must be accepted as part of a mainstream policy process to ensure the government's sustainable development policy goals are achieved.

The clearest example of this is in relation to climate change. The Department played a key coordinating role in providing advice to the government in preparing actions for Australia's domestic greenhouse response in the lead up to the Kyoto conference. The Department has also taken a leading role in the development of a national oceans policy. This will be implemented through integrated ecosystem-based planning and management, with close coordination between the States and the Commonwealth.

A number of effective interdepartmental and intergovernmental coordination mechanisms have been established to implement ESD in natural resource management areas and greenhouse. There are a range of models including COAG working groups (eg oceans policy and greenhouse), other whole of government coordination mechanisms (eg forests) and partnership arrangements such as the NHT. Common features of these successful models are:

- ESD objectives are central to the development of policy;
- broad agreement by relevant parties to the desired outcome from the process;
- cross portfolio inter and intra-governmental coordination is built in;
- relevant information has been assembled and provided to decision makers;
- key government, industry and community stakeholders have been consulted;
- monitoring, evaluation and review mechanisms have been established.

The Australian Greenhouse Office offers another model, where departmental structures are merged to achieve cross Portfolio integration, see case study 5.

Most of the department's programs incorporate ESD goals and principles. The environmental goals and principles of the NSESD provide a central focus for the management of departmental programs. The economic and social objectives of the strategy are taken into account in a variety of ways. Some programs such as the Natural Heritage Trust include explicit economic and social objectives and performance indicators. In other cases economic and social objectives are built in through stakeholder consultation processes and/or interdepartmental committees. Representatives of the environment department are in a minority in these processes. The task of gaining the support of other government departments and agencies, industry, and community, to ensure that environment issues are given appropriate weight in policy and decision making, remains a major challenge for the department.

The attached case study 6 illustrates three examples of how it was possible to take account of relevant ESD principles in Commonwealth environmental impact assessments because of the more strategic nature of each assessment.

New Commonwealth environment legislation

In recent years the Government has undertaken reviews of intergovernmental environment arrangements and Commonwealth environmental legislation, which have contributed to implementing and incorporating ESD into decision-making.

A primary objective of the review of Commonwealth/State roles and responsibilities for the environment, undertaken in 1996-97, was to more effectively implement the IGAE. The resulting COAG Heads of Agreement on Commonwealth/State Roles and Responsibilities for the Environment, will promote the application of the principles of ESD, as contained in the IGAE, and lead to:

- Commonwealth interests being focused on matters of national environmental significance;
- more streamlined and effective environmental assessment and approval processes;
- increased compliance with State environment and planning laws;
- more efficient and effective delivery mechanisms for national environmental programmes.

An important aspect of the Environment Protection and Biodiversity Conservation Bill, which resulted from the review of Commonwealth environmental legislation, is the implementation of key elements of the COAG Heads of Agreement. The Bill contributes to the implementation of all ESD principles, and as a result overcomes significant deficiencies in the existing legislative regime, which limit its potential to promote ESD.

The objects of the Bill include "to promote ecologically sustainable development through conservation and ecologically sustainable use of natural resources".

Prime examples of how the Bill implements the principles of ESD are:

- the Environment Minister must consider the principles of ESD in making decisions about actions which have, will have, or are likely to have a significant impact on matters of national environmental significance;
- the Minister is required to apply the precautionary principle in making a wide range of other decisions;
- the Commonwealth's environmental assessment and approvals regime is explicitly linked to matters of national environmental significance;
- duplication between Commonwealth and State governments is reduced, and a more efficient and timely Commonwealth environmental assessment and approval process is created,
- there is provision for strategic assessment of policies, plans, and programs,
- an integrated framework is established for the conservation and use of Australia's biodiversity so that conservation priorities can be determined more systematically and strategically, and regional approaches to biodiversity conservation can be promoted.

The Bill must be diligently administered in order to be fully effective. The Department has therefore embarked on a series of tasks which will ensure that:

- compliance with the Bill is properly monitored;
- the provisions of the Bill are rigorously enforced;
- stakeholders and decision-makers have the data and information they require to satisfy the provisions of the Bill; and
- relevant sectors of the community are fully informed of the Bill's implications and requirements, and administrative guidelines and procedures are clearly set out.

The full potential of the Bill to contribute to the implementation of ESD will be realised through these actions.

STRENGTHENING THE IMPLEMENTATION OF ESD

There is no universal model for the effective implementation of ESD. The complexities of ESD mean that solutions generally have to be tailored to individual circumstances, and decentralised approaches are generally preferable. Effective implementation of ESD by departments depends on three critical factors: information, incentives and feedback.

Departments need accurate information on the environment in order to integrate environmental, economic and social considerations in a sensible way in their decision making. This includes information needed to anticipate the effects of alternative policy approaches. Access to information is also needed to provide feedback to departments about the environmental consequences of their actions, and to address the interests of those who may be affected by departmental actions.

Incentives are required to persuade departments to give appropriate weight to the environmental implications of their actions. It is easier to apply performance incentives to departmental operations (matters such as building design, resource use and purchasing) than to the processes and outcomes of decisions. Some general standards or guidelines might be developed for decision making processes.

Feedback mechanisms enable departments to adjust their programs to continuously improve ESD performance, and allow third parties to assess and comment on performance

The following sections look at some information issues, and mechanisms to provide incentives and feedback.

INFORMATION AND INDICATORS

Effective ESD policy development and implementation requires a substantial amount of information. The forests case study illustrates how crucial good data, and agreement on the data, are in progressing ESD. The Commonwealth was able to obtain good data to underpin the Regional Forest Agreement

process but only at considerable expense (upwards of $60 million). Implementation of the new Commonwealth environmental legislation, and outcome based management are likely to increase the demands for good environmental information.

In the light of these developments it is not surprising that industry is showing increasing interest in the Department's data.

There are a number of constraints on the development of national environmental data;

- environmental data tend to be scattered and decentralised, with every state and every agency tending to maintain its own systems for its own immediate purposes e.g. fisheries, minerals, threatened species, air quality, water quality etc. There is little consistency among data to allow for aggregation into a national picture and even comparisons between states can be very difficult. The Land and Water Resources Audit, in particular the current vegetation initiative being prepared by Environment Australia for the Audit, could provide a practical model for better integration;
- access to data is often restricted either because of fears that they may be used for political purposes (e.g. forests or contamination of seafood) or increasingly because of cost recovery policies. Even where data exist and are available freely it takes resources to extract them, put them into useable form, and analyse and interpret them.

National environmental data tend to be limited to areas of high international interest e.g. ozone, greenhouse or to areas of direct Commonwealth management responsibility e.g. EEZ related data.

It may be possible to apply the methods used in the forests case to the management of other areas by using a mixture of satellite derived data, on the ground surveys and modelling. The Department has already started work on this approach. While it is less costly than the forests approach, substantial expenditures are still required.

Scientifically credible environmental indicators help to provide a basis to improve policy integration by allowing the determination of clear data priorities and providing a focus for considering methodology and establishment of targets. The Department has developed a national set of environment indicators and is commencing work on linking these indicators with policy objectives. The time series data for these indicators are very limited, and it is very difficult to get long term national trends for most issues. It will not be possible to establish a comprehensive set of trend data to guide decision making in the foreseeable future without considerable effort and resources.

There is a range of work on sector specific sustainability indicators in Commonwealth and State bodies. Given the growing international interest in developing common indicators which may be used in managing global

environment issues such as climate change it is important that this Australian work is consolidated and coordinated as soon as possible.

INCENTIVES

An environmental duty of care

The Productivity Commission has recently recommended, in the draft report of its inquiry into ecologically sustainable land management, that a duty of care for the environment be imposed on natural resource owners, managers and users, which requires them to take all reasonable and practical steps to prevent their activities causing harm to the environment which could have been reasonably foreseen. The Commission has raised the question of whether a duty of care could usefully be applied to government departments.

The NSESD defines a large number of strategies for implementing ESD, but does not provide much guidance on the precise nature or extent of Departmental responsibility. The policies, programs and activities of Departments have many impacts on ESD and in principle they should have a duty of care for the environment. In practice there would be a number of issues to be clarified before such a duty could be implemented:

- would the duty be defined in terms of outcomes (indicators) or the quality of advice? The former approach is complicated because departments have only limited influence over the outcomes of their policies and activities, and because of gaps in information about the state of the environment and links between economic activity and the environment;
- what indicators would be used to assess departmental performance? If the assessment were based on the quality of policy advice would it be reasonable for the duty of care to involve an assessment taking into account the best information available at the time. This raises questions about the benefits and costs of delaying decisions and obtaining further information, and the extent to which risk management techniques could be usefully applied;
- would the duty be legally binding, who would be liable if it were breached and what sanctions or penalties would follow?

However, further consideration of a duty of care for departments and agencies could be useful for a number of reasons. It would:

- enable the Commonwealth to show leadership by making departments and agencies more accountable for ESD implementation;
- encourage a general discussion and debate about the environmental responsibilities of departments and agencies;
- lead to some clarification of the issues involved in accounting for ESD and possible approaches;
- raise the profile of ESD in departments where it remains low.

Eco-efficiency, cleaner production and environment management systems

The concepts of eco-efficiency, proposed by the World Business Council for Sustainable Development (WBCSD) and Cleaner Production proposed by the United Nations Environment Programme (UNEP) provide a useful framework for integrating ESD into business activity. In summary, these concepts revolve around improving the efficiency of resource use and the efficiency of industrial manufacturing processes thereby reducing costs to the enterprise while simultaneously reducing the effect on the environment through more efficient use of raw materials and less pollution output.

At a practical level there are three important steps that can integrate ESD more into the operation of enterprises:

1. *Commitment*. An explicit recognition and commitment from the top of an enterprise that meeting environmental and social goals are important not only from a community-responsibility perspective, but also in terms of improving the enterprise's financial performance;

2. *Systematic Inclusion*. A systematic integration of environmental impacts into all aspects of an enterprise's activities, preferably in a quantitative way. Mechanisms currently available are Environmental Management Systems and industry standards such as ISO 9000 and ISO 14000;

3. *Performance Monitoring and Accountability*. Regular measurement of environmental performance, preferably quantitative, which is reported publicly either through existing mechanisms such as annual reports or the increasing use of specialised environmental reports.

Many businesses are taking this approach. While it is being pursued by some Commonwealth bodies, there is considerable scope for increased application by the Commonwealth departments and agencies in both policies and operations.

Some Commonwealth agencies are land managers and are responsible for significant engineering and construction projects. All agencies are significant purchasers of goods and services, energy users and waste generators. The greater use of Environmental Management Systems (EMS) to cover the operations of government agencies, and annual reports on the implementation of these EMSs (as in the private sector) would lead to a marked improvement in environmental performance as well as a reduction in costs. The minimum reporting standards should not be lower than what will now be required by Australian Securities Investment Commission for company reporting.

Similarly, greater integration of ESD considerations in Commonwealth purchasing and contracting would significantly improve ESD performance. This is particularly relevant with the current devolution of purchasing decisions to each agency. The Department has recently commissioned a study on waste minimisation and purchasing by Commonwealth agencies that shows considerable opportunities for improvement.

Economic instruments

There is no doubt that property rights, taxes and charges can be effective tools for achieving policy integration. This is already happening. The proceedings of the 1997 Environment Economics Roundtable noted the enormous increase in the range of applications of economic instruments for environmental purposes. There is scope for further increases in the use of economic instruments, but the equity effects and wealth transfers which are involved impose constraints:

- for example road user charges are justified on both environmental and economic grounds, but the infrastructure is expensive and car users would have to pay for it;
- there are economic and environmental arguments for higher fuel prices, but there are also arguments about equity and social impacts.

The practical implications of the NSESD framework require further development before the potential of the use of market instruments to deliver ESD outcomes can be fully realised.

Cost effectiveness of regulation

New national regulation is subject to a regulation impact statement (RIS). RISs do not guarantee that the practical implications of new regulation have all been assessed before new legislation is brought forward, particularly in the case of large and complex piece of legislation. RISs also do not provide a comprehensive assessment of the environmental impacts of regulation, including the long term economic benefits. RISs are more likely to be useful if RIS principles are injected early in the policy process, rather than as a screening process. There may be scope to improve RIS processes to better address these issues.

Application of outcome based management to ESD

Departmental monitoring, review and evaluation of the ESD outcomes of Commonwealth policies and programs is constrained by the absence of clearly defined goals, targets, timetables and indicators. Also departmental responsibilities for ESD implementation remain ill defined.

Current moves towards outcome based management and budgeting offer incentives for a fresh approach to accounting for ESD implementation.

A number of issues will need to be tackled in order to implement this approach:

- the achievement of ESD outcomes requires the integration of long term programs to protect and repair the environment, and programs which deliver short term economic and social benefits;
- the environmental responsibilities of departments, and ESD outcomes and outputs will need to be tightly defined. At the same time flexible

approaches (adaptive management) will be needed in view of the rapid increase in scientific knowledge about the environment;
- programs to enhance data on the environment, and impacts of human activity on the environment will be needed to underpin outcome based management;
- departmental outcomes and outputs related to ESD will need to be clearly differentiated so that the government knows what services it is purchasing from departments, and what they are individually accountable for. At the same time there will be linkages between the outcomes and outputs of different departments, and there will need to be processes to ensure consistency and complementarity of approach.

Under outcome based management the rationale for evaluations will shift. Outcome and output budgeting will ensure regular examination of program effectiveness and efficiency. Evaluations will focus more on the appropriateness of policies and programs in relation to ESD implementation.

INSTITUTIONAL MECHANISMS TO PROVIDE FEEDBACK AND ENHANCE COMMUNITY UNDERSTANDING AND SUPPORT FOR ESD

Community views on the importance of the environment

The environment is a significant issue for the community, particularly after the Rio Declaration on Environment and Development in 1992.

ABS surveys of "Environmental Issues: People's Views and Practices" in 1992, 1994 and 1996 have indicated that concern for the environment is strong and stable in the Australian community.

In 1996, the ABS surveyed 18 500 private dwellings in all states and territories, in capital cities and other urban and rural areas. The 1996 survey shows that around 70 per cent of Australians are concerned about the environment. This figure has fluctuated only slightly over the three surveys since 1992.

The 1996 survey also shows that 19 per cent of Australians consider that environmental protection is more important than economic growth while 71 per cent consider that environmental protection is as important as economic growth. These figures have been very stable since 1992. The survey also ranks environment as the fifth most important social issue; ahead of interest rates, poverty, immigration, the trade balance and defence, and behind crime, health, unemployment and education.

A newspoll survey, conducted by *the Australian* newspaper in September 1998, provides recent confirmation of the significance of the environment to voters.

The survey, based on 1147 telephone interviews in both city and country areas, showed that nearly 60 per cent of Australian consider the environment to be a very important issue in determining how they would vote in a federal election. The environment was ranked seventh, ahead of interest rates, inflation, balance

of payments and industrial relations, and behind unemployment, health, and taxation.

Mechanisms to provide policy feedback and enhance support

While there is strong community support for the environment, support is variable across regions, sectors and departments. More significantly community interest tends to focus on specific issues. Less attention is given to the long hard slog of environmental maintenance and repair, and environmental science, where results are not particularly visible in the short term. This constrains the ability of the environment to attract ongoing funding.

This has lead to consideration of institutional mechanisms to ensure that long term and strategic environmental issues, and ESD performance are debated and publicised, providing policy feedback. Such mechanisms may contribute to ESD implementation in one or more of the following ways:

- engage stakeholders and gain their support;
- improve ESD planning and coordination;
- generate information and policy options for decision makers;
- provide feedback on ESD performance;
- educate the community about ESD.

Such mechanisms need a clear mandate and authority in order to be effective. Authority can be achieved by the direct involvement of Ministers or clear links with the policy decision making process. Mechanisms also need to be perceived to engage key stakeholders while retaining independence ie not being dominated by any one group. Care would have to be taken that any new mechanism did not add an extra layer (and time) to decision making, or overlap with existing functions.

Alternative mechanisms fall broadly into three categories:

1. consultative fora, at which key stakeholders offer views to the government;
2. expert groups which provide advice to the government; and
3. ESD performance assessment mechanisms.

Combinations of these categories are also possible.

Consultative mechanisms can clarify stakeholder views, and help to develop better understanding among stakeholders of differing views. They can also provide information to assist planning and coordination. Large membership and top heavy government representation limit the scope for regular meetings and can constrain agreement on new policy options or ESD performance assessment. Strong leadership would be needed to achieve results. A high level ESD consultation forum was tried in Australia, but the debate was not effectively channelled. Interest groups largely offered set pieces and there was little useful debate.

Expert advisory groups can be structured to develop information and policy options but may be criticised as being insufficiently independent or

consultative. Advisory mechanisms offer opportunities to push ESD in particular sectors or on specific cross sectoral issues but effective planning and coordination is needed to ensure policy integration. The effectiveness of advisory mechanisms can be increased by Ministerial involvement. For example, Ministers could set workplans and participate in discussions. Ministerial involvement would provide improved links between the work of an advisory group and policy decision making processes, but it would be difficult to achieve on a regular basis. One example of an expert advisory mechanism with ministerial involvement is the UK Roundtable on Sustainable Development.

Performance assessment mechanisms such as an independent Commissioner for Sustainable Development can clarify opportunities for progress on ESD, by suggesting fresh approaches where progress is slow and publicising examples of best practice ESD implementation. Commissioners for Sustainable Development have been established in both Canada and New Zealand. However there is no evidence that sustainable development is being any more effectively achieved in either Canada or New Zealand.

A independent Commissioner can operate outside the confines of the political cycle, and examine the longer term ESD outcomes of Commonwealth programs and processes, including accredited processes. A Commissioner would need to be given some influence in order to command the best available scientific and policy advice, and mechanisms for incorporating the Commissioner's advice in decision making processes would need to be examined. There seems little point in a Commissioner restricted to a narrow role of auditing ESD performance by departments. This could (continue to) be undertaken by the Auditor General.

TRANSLATING ESD POLICIES INTO RESULTS ON THE GROUND

A substantial proportion of the implementation of ESD takes place locally. This is recognised in Agenda 21, which proposes that "each local authority should enter a dialogue with its citizens, local organisations and private enterprises and adopt a local agenda 21".

The IGAE recognises local government responsibilities for the development and implementation of environment policies within its jurisdiction and local government's interests in the development of national policies, programs and mechanisms which affect more than one local government unit.

Australia has adopted an APEC target established in 1997, to double the number of local agenda 21 councils by 2002.

The effectiveness of Commonwealth policies and programs (and State and Territory programs) in promoting ESD outcomes is being constrained by a gap in ESD implementation at the local and regional level:

- establishing ESD priorities at the regional and local level is particularly challenging. The practical definitions of ESD principles such as ecosystem

protection, the precautionary principle and intergenerational equity are particularly difficult at the local level;

- local authorities face a plethora of national policies and strategies. The objectives of these strategies often appear confusing, and sometimes appear to be in conflict. From a local government perspective, Commonwealth programs are not well integrated;
- local and regional institutions potentially provide a good basis for policy integration, but there is a multiplicity of players and fragmentation of roles and responsibilities.

The Natural Heritage Trust has some features which favour local government involvement. For example, Trust Partnership Agreements acknowledge the key role of local governments and regional organisations, and the NHT One-Stop-Shop allows local authorities to access Commonwealth programs in an integrated way.

The effectiveness of Commonwealth policies to implement ESD at the local and regional level could be increased by a national approach to encourage and accelerate the development and establishment of Local Agenda 21s. The benefits would include helping to identify priorities for Commonwealth resources and assistance, and accrediting State and local activities so that requirements for Commonwealth assessment would be reduced.

CONCLUSIONS

Commonwealth departments and agencies have made substantial progress in implementing ESD, although the task has not been easy. There are many opportunities for further progress. The Department of Environment and Heritage will continue to play a key coordinating role and work with others to ensure that the government' sustainable development policy goals are achieved, including through the implementation of new Commonwealth environment legislation. The Department will work to achieve a better information base for decisions related to ESD, and will continue to supply best practice examples of ESD implementation in areas such as forests and oceans.

GLOSSARY

APEC	Asia Pacific Economic Cooperation
CAR	Comprehensive, Adequate, Representative (forest reserve system)
COAG	Council of Australian Governments
EEZ	Exclusive Economic Zone
EP (IP) Act	Environment Protection (Impact of Proposals) Act
EPBC Bill	Environment Protection and Biodiversity Conservation Bill
ESD	Ecologically Sustainable Development
IGAE	Intergovernmental Agreement on the Environment
LA21	Local Agenda 21
NHT	Natural Heritage Trust
NSESD	National Strategy for Ecological Sustainable Development
RFA	Regional Forest Agreements
RIS	Regulatory Impact Statements

Productivity Commission Inquiry into the Implementation of Ecological Sustainable Development by Commonwealth Departments and Agencies

Case Study No. 1

REGIONAL FOREST AGREEMENTS PROCESS

Background

The Regional Forest Agreements (RFA) process is the principal vehicle for implementation of the 1992 National Forest Policy Statement (NFPS). The Commonwealth and all States and Territories except Tasmania endorsed the NFPS in December 1992. Tasmania endorsed the NFPS in April 1995, prior to commencing the RFA process.

The RFA process as such was initiated following the issuing of woodchip export licences in December 1994. Conflict between industry and conservation groups was revived in the context of disagreement between the then Minister for Resources and Minister for Environment, Sport and Territories regarding the use of advice on environmental impacts in the licensing decisions. To that time governments had made little progress in implementing a long-term, strategic approach to dealing with the land-use issues associated with forests.

The then Prime Minister announced that the Department of the Prime Minister and Cabinet (PM&C) would be given responsibility for resolving the immediate issues and expediting implementation of the NFPS. This was to be achieved via the negotiation of Commonwealth-State Regional Forest Agreements for all regions with significant native forest-based industries by 2000. The Prime Minister also announced that exports of woodchips sourced from native forest areas not covered by RFAs would be phased out by 2000.

<u>Ecologically sustainable development</u>

The NFPS was the joint Commonwealth, State and Territory response to the report of the Ecologically Sustainable Development Working Group on Forest Use. As such, it addresses the roles and responsibilities of the various levels of government (including local government) and private landholders in the ecologically sustainable use of forests.

The previous failure to identify appropriate levels of government involvement was only one of a number of factors fuelling the debate over forest management. The Resource Assessment Commission Forest and Timber Inquiry (1989-92), the first comprehensive Commonwealth investigation of forest matters in Australia, dealt with the prospect for reducing conflict in the area. The Inquiry concluded that 'coordinated national strategies and guidelines for prospective regional forest planning' were necessary to remove reliance on 'ad hoc, reactive mechanisms for accommodating the interests of more than one government in forest use decisions'. The inquiry also identified other sources of conflict such as the lack of knowledge of

the long term environmental impacts of wood production in native forests, lack of a strategy to ensure the conservation of biological diversity of natural forest ecosystems, and the lack of any method to permit identification of an optimal balance of resource uses.

The NFPS identifies eleven national goals to be pursued on a regional basis. These goals include conservation of a permanent native forest estate, development of an internationally competitive timber industry as well as provision for other forest-based economic activities, employment and other social objectives, and promotion of sustainable forest use internationally. These goals reflect many of the findings of the Resource Assessment Commission.

These goals are pursued on a regional basis through the RFA process. Each RFA will be a legally binding, 20 year agreement providing for a comprehensive, adequate and representative (CAR) reserve system, for the ecologically sustainable management of all forested areas in the region, and for long term forest industry development. They will be reviewed every 5 years. The agreements follow comprehensive regional assessments of environment and heritage values, economic and social values (including the potential impacts of changed resource availability) and processes for adaptive management of forests in the region (the Ecologically Sustainable Forest Management or ESFM component). The RFA process is complemented by the national industry development initiatives of the Wood and Paper Industry Strategy, and structural adjustment initiatives under the Forest Industry Structural Adjustment Program. The process is predicated on the basis that, not only should forest conservation values be protected in a comprehensive, adequate and representative manner, but that the community should receive an appropriate economic return on native forest resources. RFAs seek to harmonise these concepts.

The lack of methods for consistent and reliable assessment of market and non-market forest values remains an issue. The Commonwealth, together with the States, developed criteria for the establishment of a national comprehensive, adequate and representative reserve system (the JANIS criteria - see below) to provide a benchmark for protection of environmental values. There are, however, no equivalent criteria for social and economic outcomes. Final RFA outcomes therefore continue to represent the judgement of governments, albeit from a better informed starting point, as to the appropriate balance of competing land uses. Appropriate performance measures, however, are being built into ESFM systems, which are being accredited as part of the RFA process. ESFM encompasses the entire range of forest values, including economic and social. As such, these indicators will provide not only the basis for evaluation of each RFA and the RFA process overall, but also a key component in continuous improvement in the process, as RFAs are reviewed and/or re-negotiated when they expire.

Commonwealth involvement in environmental matters

The NFPS recognised that States have primary responsibility for the processes of land use planning and management as they apply to public and private forests. The Commonwealth has overlapping responsibilities for issues of national and international significance such as biodiversity, national heritage (including indigenous heritage) and world heritage. These responsibilities are in many

instances linked to statutory responsibilities under Constitutional heads of power, such as international trade and treaties heads of power.

In a legal sense, the Commonwealth's involvement in forest matters stems primarily from its licensing activities under the *Export Control Act 1982*. Regulations made under the Export Control Act declare unprocessed wood and woodchips sourced from plantations or native forests to be prescribed goods for the purpose of the Act, subject to some exceptions, such as for wood sourced from an RFA region. Wood which is a prescribed good may not be exported without a licence.

These Regulations have at various times been administered by the Minister responsible for primary industries or resources. It has followed that the principal responsibility for forests policy has rested with the Department of Primary Industries and Energy (now the Department of Agriculture, Fisheries and Forestry). Their focus has, naturally, been on facilitating industry development. The 1996 Regulations which govern the export of native hardwood woodchips pending finalisation of RFAs nevertheless require that licensing decisions take into account protection of areas which may be required for a CAR reserve system, and environmental protection more generally.

The act of issuing a licence to export unprocessed wood or woodchips triggers the provisions of the *Environment Protection (Impact of Proposals) Act 1974* (the EP(IP) Act) and, where a National Estate place is potentially affected, the *Australian Heritage Commission Act 1975* (the AHC Act). Thus, the Environment portfolio has been involved in the licensing process to the extent that it provides advice under these Acts.

Clearly, the application of export controls alone is not an efficient means of achieving the Commonwealth's forest policy objectives (although they nevertheless provide a valuable focus for national issues). The application of environment and heritage legislation is generally limited to those operations associated with exports and it is virtually impossible to administer these Acts with a long term perspective. The licensing process also imposes costs on exporters and the industry, additional to those arising from compliance with State regulation.

The RFA process allows the Commonwealth to meet its environment and heritage obligations in respect of forests in a region by assessing relevant values, and the processes in place to ensure the long-term protection of such values, at a regional level. At the same time, the RFA process provides the opportunity for assessment of the economic and social aspects of forest policy, in particular the competing uses of forests and economic and social impacts of specific proposals. Aside from issues of ecological sustainability, development is needed in parts of the wood and wood products industry, for example in the area of technology uptake, if they are to be competitive internationally.

Under proposed new Commonwealth legislation, namely the Regional Forest Agreements Bill and Environment Protection and Biodiversity Conservation (EPBC) Bill (both of which are to be reintroduced into the Parliament), the statutory context of the Commonwealth's involvement in forest matters would change significantly. In respect of areas covered by RFAs, it is intended that the Commonwealth's involvement be limited, according to the terms of the RFAs themselves. (This

position is based on satisfying the requirements of the EP(IP) Act and AHC Act at the point of concluding an RFA.) Beyond RFA regions, forestry activities would only trigger Commonwealth involvement if a matter of National Environmental Significance (as defined by the EPBC Bill) was affected.

Inter and intragovernmental coordination

Intragovernmental coordination

In early 1995, the government established a Forests Taskforce in PM&C, including officers from the former Primary Industries and Energy and Environment portfolios. The idea behind the establishment of the Taskforce was to create a single point from which to provide coordinated policy advice to the Prime Minister and Ministers. This would complement the continuing responsibilities of relevant Commonwealth portfolios. The secondment of officers from the Primary Industries and Environment portfolios to the Taskforce, helped to provide continuity between the two portfolios and the Taskforce.

The Environment Forest Taskforce was established within the Environment portfolio some time later to provide a similar focus for the various groups within that portfolio working on RFAs. Additionally, a second Forests Branch, the Forest Assessment Branch, was established in the then Land Resources Division of the former Department of Primary Industries and Energy specifically to deal with RFAs and the related Forest Industry Structural Adjustment Program (FISAP).

Within the Commonwealth, the two main 'streams' of the comprehensive regional assessments are managed by respective portfolios - environment and heritage by Environment and economic and social by the new portfolio of Agriculture, Fisheries and Forestry - while the ESFM component is jointly managed. This allocation of responsibility generally reflects the distribution of expertise across the Commonwealth. Overall management of the RFA process rests within the PM&C Forests Taskforce.

These arrangements have been critical in developing RFA outcomes which balance environment/heritage and economic/social considerations. There is considerable (and to some extent conscious) overlap between portfolio priorities. It is also true, however, that portfolio arrangements tend to promote a sectoral or segmented approach to issues. The fact that the process has not become bogged down in resolving cross-portfolio disputes is largely due to the existence of a coordination structure which is one step removed from portfolios, and has been set the specific task of producing balanced outcomes.

Intergovernmental coordination

Intergovernmental coordination occurs on two levels. National-level policy is resolved multilaterally. The joint intergovernmental National Forest Policy Statement Implementation Subcommittee (JANIS) was the body of Commonwealth and State/Territory officials initially given the task of implementing the NFPS. JANIS developed the Nationally Agreed Criteria for the Establishment of a Comprehensive Adequate and Representative Reserve System for Forests in Australia (hence they are known as the JANIS Reserve Criteria). The Standing

Committee on Forestry (an officials committee of the MCFFA) also contributes to the RFA process on an irregular basis.

The CRA Implementation Forum (CRAIF), comprised of Commonwealth officials and representatives of States involved in the RFA process, is the usual forum for discussion of issues relevant to the CRA/RFA process. The CRAIF was, for example, the avenue for Commonwealth consultation with relevant States on proposed legislation to complement RFAs.

A further Commonwealth-State officials group is the Montreal Process Implementation Group for Australia (MIG). Established by the relevant standing committees of the MCFFA and ANZECC, the MIG has developed a framework of regional criteria and indicators for forests, based on the internationally agreed Montreal Process criteria and indicators.

Arrangements for managing individual RFAs at the Commonwealth-State level vary slightly depending on the State. The basic rules of engagement are set out in a Scoping Agreement between the Commonwealth and the relevant State government. Generally, the coordination arrangements include a Commonwealth-State steering committee responsible for approval of assessment projects, resolution of policy issues and development/negotiation of the RFA document. These committees include a range of representatives from government agencies with an interest in the RFA, and in some cases include community/industry representatives. Below the steering committee level are (generally) social and economic, environment and heritage and ESFM technical committees, which develop and manage the various streams of projects. Again, these are made up of government agency representatives and in some States other stakeholders. In Queensland, for example, there is non-government stakeholder involvement in the form of a Reference Panel, which has three representatives on the Steering Committee. Importantly, the technical committees for the two streams are not isolated - environment agencies are represented on social and economic technical committees and vice versa.

These arrangements permit a high degree of scrutiny of the process by all parties, which helps to maintain transparency and consensus. The regular, focused meeting of Commonwealth and State officials also facilitates the resolution of inter-governmental issues at the officials' level. However, the Commonwealth tends to have quite different priorities from State governments when it comes to resolving competing resource uses. The relationship between the Commonwealth and each State varies markedly depending on factors such as the relative influence of environment/resource agencies on the State government, the extent to which regulation of forest industries is linked to State commercial activities, and the general relationship between governments.

State governments are responsible for on ground management and for implementing change such as implementing ESFM practices. State forest management agencies often have commercial relationships with the wood and wood products industry and are quite sensitive to the potential impacts of RFA decisions on their clients. The prospect of removal of Commonwealth export controls has been a key to maintaining State involvement in the process, and the momentum of the process. This is in part because of the intense pressure which the industry is placing on State governments to resolve RFAs.

Incorporating ESD goals and principles into government decision making

Incorporation of Ecologically Sustainable Development (ESD) principles into Commonwealth decision making relating to RFAs is achieved by design. The framework set up through the NFPS, Scoping Agreements and Commonwealth regulatory regime requires that decisions balance environment and heritage considerations with economic and social considerations. Beyond this, however, there is considerable incentive for Commonwealth and State parties to arrive at durable solutions. An agreement that fails to be credible in terms of balancing these considerations will not receive the public and political acceptance required for a 20 year life.

The decision as to whether the Commonwealth should enter into an RFA has to date been made by the Prime Minister on behalf of the Government, although there is no legal requirement that this be the case. Similarly, advice on the decision to conclude an RFA provided under the EP(IP) Act and AHC Act is addressed to the Prime Minister. By the final stages of the RFA process, however, portfolio Ministers and their offices have been substantially involved in coming to the preferred Commonwealth position, and they continue to be consulted.

For the most part, advice to Ministers on RFA issues is provided in the form of a single brief from the Forests Taskforce Board of Management (BoM) chaired by PM&C. The purpose of the BoM is to ensure that portfolios, as far as possible, reach consensus on how to resolve issues before advising Ministers. This mechanism is helpful in terms of bringing together environment/heritage and economic/social considerations.

The other aspect of the CRA/RFA process which has strengthened decision making in terms of ESD outcomes is the emphasis on collecting and using the best available data. The Commonwealth and State agencies have made an enormous investment in the data collection phase of RFAs. The quality of preexisting data varied between regions, but as a rule was inadequate as a basis for making long term land use decisions. The outputs of the CRA for each region are data on the range of forest values which will be integrated to produce options for reserve design and allocation of land to timber production and other uses, and industry development possibilities. As such, each option is intended to highlight a different possibility for achieving conservation, economic and social outcomes. (Environment and heritage assessments are designed to provide information on values identified by the JANIS reserve criteria. Social and economic assessments are designed to give an overall picture of existing social and economic structures and to predict impacts of reserve design options.) Each RFA to date makes provision for ownership, maintenance of, and access to, relevant data.

If for no other reason, RFAs will promote the principles of ESD as they apply to forest management because they will increase the transparency of forest management decision making, and the public accountability of agencies for those decisions. The principles of ESFM specify standards for public involvement/consultation in forest planning. Each RFA will also require that the State undertake a 5-yearly review of the operation of the RFA, with the findings to be reported publicly.

Performance management

Some RFA Outcomes

Three RFAs have been completed to date, for East Gippsland (Victoria), Tasmania and Central Highlands (Victoria). In East Gippsland, 13,000 ha were added to the forest reserve system. The signing of the Agreement releases 650,000m^3 of residual logs. This, combined with the more secure investment base produced by the Agreement is estimated to produce up to 400 new jobs. In Tasmania, 396,000 ha were added to the forest reserve system, an increase of 17 per cent. A combination of plantation development, more intensive forest management and other industry development measures are estimated to maintain the current harvest level of 300,000m^3 of sawlogs each year and create in the region of 500 long term jobs. In Central Highlands, 116,000 ha were added to the reserve system, an increase of 64 per cent. The Agreement also provided a commitment to supply the current licensed volume of 345,000m^3 of sawlog over its 20 year life.

The efficiency and effectiveness of these Agreements have yet to be assessed. This will occur during the regular 5 year review of each Agreement. The process through which they were developed will be considered during the cross-portfolio evaluation of the RFA process (see below).

Review of the CRA/RFA process

The Commonwealth Government is committed to finalising nine additional RFAs by the end of 1999. To facilitate Government consideration of the most efficient and effective means of meeting this commitment in the context of the 1999-2000 Commonwealth budget process, a confidential interim evaluation of the CRA/RFA process to date is being prepared. Consultations with State Governments and with key stakeholders will be a component of this evaluation.

Reviews of RFA outcomes

RFAs contain milestones for implementation of commitments e.g. establishment of reserves, implementation of ESFM recommendations. Parties are required to report to each other on achievement against these milestones, annually for the first five years and then as they fall due.

As noted previously, each RFA will also be reviewed on a 5-yearly basis, against the agreed commitments and milestones established by the RFA. Although the details of how the five yearly reviews will be conducted have not yet been settled, they will incorporate public consultation and be consistent with internationally agreed criteria and indicators of sustainable forest management (i.e. the Montreal Process).

The latter is the principal means for ongoing assessment of the performance of RFAs in terms of ecological sustainability. The five-yearly review is not intended to provide an opportunity to renegotiate an RFA. It is, however, anticipated that management practices will be adapted where necessary to ensure the objectives of the RFA continue to be met. The five-yearly review will also consider the content of the RFA.

Productivity Commission Inquiry into the Implementation of Ecological Sustainable Development by Commonwealth Departments and Agencies

Case Study No. 2

NATURAL HERITAGE TRUST

Background

The Natural Heritage Trust was established in 1996-97 with funding of $1.249 billion for the five year period 1996-97 to 2000-01. It is administered jointly by Environment Australia and the Department of Agriculture, Fisheries and Forestry and provides a basis for cooperative and integrated approaches to dealing with Australia's environmental problems.

The main objective of the establishment of the Trust - to conserve, repair and replenish Australia's natural capital infrastructure - is directly relevant to the core objectives of ESD. The principles of ESD are embedded in the enabling legislation for the Trust. The long-term success of the Trust will contribute to successful achievement of the goal of ESD

The Trust includes a number of major new initiatives and subsumes some existing programs managed by either department. Most of the existing programs had already incorporated ESD objectives and principles prior to establishment of the Trust.

Commonwealth involvement in environmental matters

Reasons for Department's involvement

In establishing the Natural Heritage Trust, the Parliament of Australia recognised the need for urgent action to redress the current decline, and to prevent the further decline, in the quality of Australia's natural environment. It also recognised the need for the Commonwealth to provide national leadership and work cooperatively with other levels of government and the whole community. The Department therefore provides the administration of the Trust in line with the *Natural Heritage Trust of Australia Act 1997* (the Act), under the direction of the Minister and the Natural Heritage Ministerial Board.

Incorporation of ESD goals and principles in the Natural Heritage Trust

The preamble to the Act notes the relationship between activities under the Trust and the ecologically sustainable management of the natural environment. The Act also requires Ministers to have regard to the principles of ESD in making decisions under the Act. The major advance that the Natural Heritage Trust has made in applying ESD objectives and principles is the further integration of the Commonwealth's approach to environmental protection, natural resources management and sustainable agriculture. This has been achieved through a number of means, including several institutional changes.

Inter and intragovernmental coordination

Many institutional changes have been achieved through the legislation establishing the Trust, the *Natural Heritage Trust of Australia Act 1997*.

Ministerial Board

The Act establishes the Natural Heritage Ministerial Board. There are two members - the Minister for the Environment and the Minister for Agriculture, Fisheries and Forestry. While the two portfolios have complementary responsibilities, the Board provides a formal mechanism for integrating the activities of the two portfolios on matters relating to the Trust. The Act prescribes that the Ministers must consult with each other on any decision to spend Trust funds, and must have regard to the principles of ESD in making these decisions.

Memorandum of Understanding

At an operational level, a Memorandum of Understanding (MOU) between Environment Australia and the Department of Agriculture, Fisheries and Forestry establishes the framework within which the agencies work cooperatively. The objective of the MOU is to enhance cooperation between the two agencies, and establish common operational principles for the implementation of the Natural Heritage Trust and related programs, through mutually consultative policy development and integrated and streamlined administration of programs.

Partnership Agreements

Partnership Agreements between the Commonwealth and each State and Territory are the central means of integration and delivery of the Trust. These agreements recognise the goal of ESD and adopt the principle that implementation will occur within the strategic framework of the National Strategy for ESD.

The Partnership Agreements are established as a requirement of the Act and provide a framework for cooperation. The Commonwealth uses the agreements to ensure that policies and guidelines for environmental protection and sustainable development are consistent with national standards and priorities. In addition, the Commonwealth seeks complementary and consistent State regulatory and administrative arrangements.

Partnership Agreements were signed between July and December 1997, generally by the Prime Minister and the State Premier, and are endorsed by State Cabinets.

The agreements require that, in general, project applications will be examined by Regional and State Assessment Panels. Panels must be chaired by a community representative and must have a majority of community membership. They must encompass a variety of skills and experience covering environmental protection (including biodiversity conservation), sustainable agriculture, natural resources management. Where appropriate they may include skills relating to land, water, marine, vegetation, conservation, farming, indigenous land management, and state and local government themes.

Natural Heritage Trust Advisory Committee

Further integration is achieved through arrangements for provision of integrated advice to the Board. The Natural Heritage Trust Advisory Committee was established by the Act and brings together some of Australia's most respected scientific and natural resource management experts to provide advice to the Board. The functions of the Committee are described in the Act:

- to advise the Natural Heritage Ministerial Board about the integration of the objectives of environmental protection, natural resources management and sustainable agriculture;

- to advise the Natural Heritage Ministerial Board about the effectiveness of agreements entered into under subsection 19(2) [partnership agreements] in achieving integrated outcomes for the operations of the Reserve;

- when requested by the Natural Heritage Ministerial Board to do so -- to advise the Natural Heritage Ministerial Board about other matters.

Committee members are appointed by the Board and at least five members must have knowledge of, or experience in, one or more of the following fields: biodiversity conservation; land and/or water management; native vegetation sciences; river and/or wetland ecology; and coastal and/or marine systems. This composition allows the Committee to provide advice that is integrated across these fields. In several cases, the committee members are the Chairs of program-related advisory bodies, such as the Australian Landcare Council and the Council for Sustainable Vegetation Management, thus providing a further communication linkage.

Natural Heritage Trust One-Stop-Shop

The One-Stop-Shop process is a key mechanism for achieving greater integration of Trust-funded activities. By simplifying the application and assessment process, applicants can access the ten Trust programs delivered through the One-Stop-Shop. Projects are selected through a single application and assessment process and directed to the most relevant program or programs, then managed with a single payment schedule and integrated monitoring, reporting and evaluation process. This simplifies the process for the applicant, and means that applications can encompass a range of issues, such as beneficial outcomes for both natural resource management and the environment). Applicants do not have to target their projects to a particular program, which may have resulted in valuable activities not directly relevant to that program being omitted.

Integration at a Regional Scale

The National Landcare Program initiated joint Commonwealth-State regional initiatives in natural resource management under the Framework Partnership Agreements in 1994, the first being in the Swan-Avon Catchment of Western Australia. The Natural Heritage Trust has built on this approach by incorporating it as a key aspect of the Partnership Agreements, stating that 'Regional/catchment

planning will generally form the framework for the integration of the various level of delivery of the Trust...'

Delivery of the Trust at a regional or catchment level is achieved through addressing regional priorities and the implementation of regional strategies.

The application guidelines emphasise the key principle that projects should take a strategic approach at a scale appropriate to the problem being addressed. The most effective scale for the issues addressed by the Trust is usually regional, and so projects consistent with a regional strategy or plan are therefore more likely to receive funding.

Involvement of Regional Assessment Panels in examining project applications at an early stage of the assessment process allows for consideration of projects against regional priorities and progress in the implementation of regional plans. Further integration of activities at a regional level in some States is achieved through Expression of Interest processes to coordinate applications from within regions.

A network of Trust facilitators has been established to encourage coordination and integration of Trust activities for particular programs (for example Landcare, Bushcare, Coasts and Clean Seas) or stakeholder groups (such as local government, indigenous groups). A major focus in facilitator training is in using the network to pursue further integration of Trust objectives, particularly at a regional level.

Catalytic Funding

Trust funding seeks to accelerate activities consistent with Trust objectives and priorities and to encourage formation of community groups and regional organisations. Through implementation of projects, groups enhance their capacity to take responsibility for sustainably managing resources they utilise or impact on, and to contribute to the achievement of Trust objectives.

The Trust's focus on delivery of regional priorities also enhances integration through building relationships between organisations involved in biodiversity protection, natural resources management and sustainable agriculture at a catchment or regional level.

Most Trust funds are invested in projects which arise from outside the Commonwealth. These are prioritised according to regional, State or national priorities. As these projects produce benefits for the proponents, it is appropriate that they should contribute, in approximate measure to the benefits derived. In some cases however, inability of proponents to meet cost sharing requirements means that applications are not submitted for activities which may be a high priority for the Trust. Some Trust programs allocate a small proportion of funds to targeted activities to ensure that these priorities are met.

Activities with Public and Private Benefit

Initiatives supported by the Trust provide a degree of integration in the treatment of public and private benefits derived. It is generally expected that more substantial private benefits will be reflected in greater contributions from private resources. All

Trust-funded programs recognise the complementary nature of public and private benefit in the issues being addressed. In addition, instruments for achieving Trust objectives include measures to support and encourage private activities which contribute to public benefits. Examples of these are:

- Landcare tax incentives. Certain Landcare works on private land are already eligible for tax deductions. The Trust package includes $80 million from Landcare to provide the option of a tax credit/rebate for farmers with low incomes who may not be able to utilise the tax deduction.

- Assistance for landholders establishing fencing for revegetation, remnant vegetation protection and/or riparian zone management. The amount of subsidy available may be varied, depending on the degree of long-term protection (for example through management agreements) proposed for the area to be fenced. Greater levels of assistance apply to more binding agreements (which have greater public benefit).

Partnerships and Community Involvement

The arrangements for the Trust emphasise the need for effective partnerships between the Commonwealth, the States and Territories, and the community. In encouraging and facilitating these partnerships, the activities of the various levels of government and the community are better coordinated, and a higher degree of integration is achieved.

The community is the key stakeholder in the Trust. It plays a key role in Trust implementation, and is the long-term beneficiary of the achievement of Trust objectives. Other important stakeholders for the Trust are the States and Territories, local government, landholders, industry and indigenous groups.

Regular consultation is an integral part of Trust arrangements, and because these consultation processes draw on the full range of stakeholders, they allow the full range of ESD considerations to be taken into account. In addition to the high level consultation though the Advisory Committee, programs often have their own advisory/consultation bodies, such as the Australian Landcare Council and the Council for Sustainable Vegetation Management. Consultation with stakeholders through Trust-specific and related fora (for example ANZECC and ARMCANZ and their committees, and the National Environment Consultative Forum) allow for economic and social considerations to influence the policy direction of the Trust.

In addition, there are a number of more specific mechanisms to involve the community and other key stakeholders in providing input to the arrangements for the Trust:

- Stakeholder fora are convened by the Commonwealth twice each year to discuss issues relevant to Trust policies and implementation. Stakeholders are also consulted in relation to specific issues (for example application guidelines).

- Community participation in assessment panels is outlined under 'Partnership Agreements' above.

Performance Management

Under the Act, the Board is required to monitor and report on the effectiveness of the administration of the Act in achieving the stated Trust outcomes. The Partnership Agreements require the Commonwealth to develop an overarching monitoring and evaluation framework for the Trust. This framework sets out the key principles and responsibilities for evaluation and reporting.

The monitoring and evaluation arrangements for the Trust ensure that the Trust is considered as an integrated entity. Monitoring, evaluation, and reporting of the Trust is required against the goals, objectives and outcomes of the Trust. The effectiveness, efficiency, and appropriateness of Trust programs will be monitored and evaluated at the national, State, regional and project level.

Performance of the Trust is reported to Parliament annually. In addition, two evaluations of the appropriateness, effectiveness and efficiency of the Trust will be conducted: a mid-term evaluation in 1999 will permit assessment of Trust progress and complement an external review by the Australian National Audit Office; and a second evaluation at the completion of Trust activity in 2001 will analyse the achievements of Trust activities and provide a framework for ongoing monitoring of major environmental outcomes.

Four key outcome areas have been identified for the Trust: integration and institutional outcomes, environmental outcomes, sustainable production outcomes, and people outcomes. Performance indicators have been developed for these outcomes at a range of levels.

Indicators of performance against the overarching objectives of the Trust are complemented by program-specific indicators. Additional performance information will be obtained on regional, catchment and thematic issues using surveys and case studies. Performance information from all sources will be reported as appropriate in the Annual Report, bearing in mind that some information will be available only on a periodic basis and that measurement of some Trust outcomes will require a long time perspective.

It is anticipated that the planned review of the Trust in 1999 will provide a clear picture on the effectiveness and appropriateness of the Trust programs and as a consequence provide some indication of its impact on promoting ESD outcomes. Employment generated through the Trust is a measurable social and economic outcome which complements the on-ground activities of the Trust and makes a wider contribution, particularly to communities in rural and regional areas. Statistics about employment are collected in project applications and reports, and collated for reporting against each program, and the Trust as a whole.

Future Directions

Expansion of the Trust

Our Living Heritage, the Coalition's policy statement for the 1998 election, committed an additional $250 million from the second tranche sale of Telstra.

Productivity Commission Inquiry into the Implementation of Ecological Sustainable Development by Commonwealth Departments and Agencies

Case Study No. 3

COUNCIL OF AUSTRALIAN GOVERNMENTS WATER REFORM FRAMEWORK

In February 1994 the Council of Australian Governments (COAG) agreed that action was needed to redress the widespread degradation and unsustainable use of our finite water resources. COAG agreed to implement a strategic package of interrelated economic and environmental reforms to achieve an efficient and ecologically sustainable water resources sector.

The Framework is to be implemented by 2001 with some commitments, for example establishment of environmental flows for stressed rivers, to be progressed by the end of 1998.

The compliance of States and Territories with the Framework has subsequently been linked with the National Competition Policy drawing the water industry more closely into the micro-economic reform process. The National Competition Council will make recommendations on progress in implementing water reforms for second tranche of the Competition Payments in 1999, and again for the third tranche payments in 2001. (Under the National Competition Policy, $16 billion in total has been set aside for distribution to States and Territories for successful implementation of microeconomic reforms in the water, gas and electricity sectors).

Environment Australia's role in this process has been to seek to ensure that implementation of the environmental components of the Water Reform Framework is maximised. This has been carried out primarily through the Department's activities in ANZECC and through activities funded under the National River Health Program.

Under the COAG Water Reform Framework, ANZECC has been given a role in advising COAG on implementation of water reform activities (along with the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) and if appropriate the Murray-Darling Basin Commission).

The National River Health Program includes components to assist implementation of COAG Water Reforms. Relevant program objectives include:

- the establishment of adequate environmental flows;
- ensuring water resource development is ecologically sustainable;
- developing strategies to reduce withdrawals in overallocated systems;
- supporting integrated catchment management.

Activities funded under the program include for instance, a workshop of scientific experts to determine standard methodology to define river stress (which ties into the COAG water reform commitment relating to the provision of environmental flows for stressed rivers by 1998).

The ANZECC Ministerial Council will meet on 11 December in Hobart. Following this meeting ANZECC will report to COAG on progress against the Water Reform Framework.

Progress to date on the reforms is variable across the States and Territories and there is considerable opposition in the rural sector to provisions of the Water Reform Framework, particularly those relating to pricing and the allocation of environmental flows.

While it is too early to pass judgement on whether the process as a whole has been successful, the National Competition Council will be assessing in 1999 the performance to date of individual jurisdictions against commitments in the Water Reform Framework in the context of the provision of the second tranche of the Competition Payments. This in-built monitoring and performance management mechanism will provide the first rigorous and extensive cross jurisdictional comparison of performance against the provisions of the COAG Water Reform Framework and consequently the move towards a more ecologically sustainable management regime for Australia's water resources.

Productivity Commission Inquiry into the Implementation of Ecological Sustainable Development by Commonwealth Departments and Agencies

Case Study No. 4

CASE STUDY - WET TROPICS OF QUEENSLAND WORLD HERITAGE AREA

World Heritage listing

The Wet Topics of Queensland was inscribed on the World Heritage List in 1988 in recognition of its outstanding natural universal values. It is one of the few areas inscribed on the List which meets all four natural World Heritage criteria. Among the values for which it was listed are its important and significant habitats for conservation of biological diversity and as an example of significant on-going ecological and biological processes.

World Heritage listing of the Wet Tropics of Queensland occurred amidst a great deal of controversy and followed several years of campaigns for and against rainforest logging. There was much debate and controversy regarding the values of rainforests and concern about their destruction through logging, rural residential sub-division and clearing for agriculture. There was conflict between the then Queensland Government which supported logging of the rainforests and the Commonwealth Government which proposed to nominate the area for World Heritage listing and prohibit commercial logging. Communities were split into groups for and against listing. Many welcomed the listing as protection for a dwindling natural treasure while others could see only loss of jobs and loss of land use.

Assessment of financial benefits

Decision makers utilised long and short term economic, environmental and social analysis to assess the conflicting resource uses and values for the Wet Tropics. Economic analyses identified the total contribution (direct and indirect) of forestry activities at $52.9 million in 1987 and tourism related industry total contribution (direct and indirect) of $167 million in the same year.

Following the Commonwealth Government's decision to nominate the Wet Tropics for World Heritage listing it signalled its determination to maximise the potential benefits of listing for the region and to develop industry initiatives to maximise new job opportunities and ensure that no parties or individuals were disadvantaged. In mid-1998 the Government announced a structural adjustment package which comprised a package of job creation, labour adjustment assistance and business compensation worth up to $75.3 million to offset the impacts of the cessation of logging in the wet tropical rainforests of North Queensland.

The benefits of listing can be seen in hindsight with tourism in the Wet Tropics World Heritage Area having an economic value to the regional economy (direct and indirect) of $753m in 1997.

Administrative and legislative arrangements

Following listing of the area, the Commonwealth needed to ensure that its duty under the World Heritage Convention to protect, conserve, present, rehabilitate and transmit to future generations the World Heritage values of the listed area was met. To assist in achieving this, a number of cooperative administrative and legislative arrangements have been put in place.

- Management Scheme
  The Wet Tropics World Heritage Area Management Scheme is an intergovernmental agreement signed originally by the Prime Minister and the Premier of Queensland in 1990. The agreement is scheduled to the *Wet Tropics World Heritage Protection and Management Act 1993* (Queensland) and given effect by the *Wet Tropics of Queensland World Heritage Area Conservation Act 1994* (Commonwealth). A revised version was signed by Commonwealth and State Ministers in 1995.

  This document has proven to be valuable as the basis for ongoing arrangements between the Commonwealth and Queensland. However, its main disadvantage, particularly in the early days following establishment of the Area, was a lack of detail. This detail has now been fleshed out in documents such as the Act and management plan.

- Wet Tropics Management Authority
  The management scheme for the Wet Tropics of Queensland World Heritage Area sets out the broad structural and funding arrangements. These included the establishment of the Wet Tropics Management Authority (WTMA) in 1992 - the operation of which is jointly funded by the Commonwealth and Queensland.

  The *Wet Tropics World Heritage Protection and Management Act 1993* provides a statutory basis for the establishment and operation of the Wet Tropics Management Authority. The Authority has a Board of Directors, an Executive Director and staff. The Board is responsible for the way in which the Authority performs its functions and exercises its powers. The Act requires the Authority to, as far as practicable, perform its functions in a way that is consistent with the objectives and principles of the NSESD.

  The Authority fulfils a planning, coordinating, funding and monitoring role in ensuring that management activities are complementary and contribute to achieving Australia's obligations under the Convention to protect, conserve, present, rehabilitate and transmit to future generations the Wet Tropics World Heritage Area. The Authority does not have day-to-day responsibility for field management; this is primarily the responsibility of land managers which are mostly State Government land management agencies.

Overall, the Authority functions extremely well. However, although the line functions indicate that the Authority is answerable to the Queensland Government, it is often subject to conflicting pressures from both the Queensland and Commonwealth. The Board members are political appointees which creates the potential for conflict.

- Ministerial Council
  The management scheme provides for the establishment of a Wet Tropics Ministerial Council whose function is to coordinate policy and funding for the Area between the Commonwealth and Queensland Governments at a ministerial level and, where appropriate, to liaise with the Authority and the Board of Directors.

  The Ministerial Council is the ultimate decision making authority and it has been effective in this role. It has ratified the management plan and through it the application of ESD principles.

- Scientific Advisory Committee and Community Consultative Committee
  A Scientific Advisory Committee and a Community Consultative Committee are established under the Act. The Scientific Advisory Committee advises the Authority on scientific research and developments that are relevant to the protection and conservation of the area. The Community Consultative Committee advises the Authority on the views of the community in relation to the Authority's policies and programs.

  These Committees have proven to be valuable in providing input to the planning and operational functions of the Authority. However, as the name suggests, they are advisory bodies and the Board is not obliged to adopt their recommendations.

- Management Plan
  An obligation for the Authority, both under the management scheme and The *Wet Tropics World Heritage Protection Act 1993* , is the preparation of a management plan for the Area. The Wet Tropics Management Plan was gazetted on 22 May 1998 and commenced operation on 1 September 1998. The Plan is subordinate legislation and provides regulatory powers to the WTMA to assist in conservation and presentation of World Heritage values through the control of certain activities that have potential to adversely impact on those values.

  The primary goal of the management plan is to implement Australia's international duty to protect, conserve, present, rehabilitate and transmit to future generations the Wet Tropics World Heritage Area within the meaning of the World Heritage Convention.

  The management plan acknowledges, as a guiding principle, the need for decisions about the management, conservation and use of the Area to be clear, efficient, equitable, consistent and ecologically sustainable. It also stipulates that, consistent with the principles of the NSESD, the precautionary principle be applied when considering applications for permitted activities.

The plan is an important and useful document. It is unfortunate that it was not until 10 years after the establishment of the Authority that it came into effect. This long period was partly the result of the extensive consultation process.

Monitoring and evaluation

- State of the Wet Tropics report
  The Authority has a statutory obligation under the *Wet Tropics World Heritage Protection Act 1993* to monitor, advise and report annually to the Ministerial Council on the State of the Wet Tropics World Heritage (see attached 'Wet Tropics Management Authority Annual Report 1997/98'). The Authority also has overall responsibility for reporting the status of the Area, coordinating implementation of policies and actions within the management plan, and evaluating the effectiveness and efficiency of management activity.

  The report is also a useful document in allowing interested parties to gain an overview of the state of the Wet Tropics.

- Systematic Monitoring System
  A simple, practical and easily implemented system for reporting on the conditions of the Area and evaluating management activity is being developed jointly between the Authority and its Scientific Advisory Committee. This system will be in a form understandable to the community, meaningful to managers and can be incorporated into other management reporting processes. The monitoring system uses a set of indicators to provide data to enable an assessment of the condition of the World Heritage Area and any variance to this condition over time (see draft version attached). The monitoring system draws on and attempts to link a number of different mechanisms. Through its application, it will address key ESD objectives and principles.

- Daintree Rescue Program
  The Daintree Rescue Package Deed of Agreement was signed between the Commonwealth and Queensland Governments on 15 December 1995. The deed identified the Daintree Rescue Program as comprising the program approved by Ministerial Council for funding from the Package.

  The Daintree Rescue Program is a $23 million co-operative program involving local, State and Commonwealth Governments aimed at protecting the rainforest of the Daintree while assisting tourism in the region to become ecologically sustainable. The program therefore, specifically incorporates the principles of ESD. The program is funded equally be the State and Commonwealth Governments with the Douglas Shire Council contributing planning, local expertise and various on-ground activities.

  The Daintree Rescue Package identified the need for the program to be evaluated. An evaluation of the program was undertaken in 1998 (see attached 'Evaluation of the Daintree Rescue Program' report).

References:

Beeton, B B, Bell L, 1998. Evaluation of the Daintree Rescue Program. Commonwealth Department of the Environment, Canberra.

Daintree Rescue Package Deed of Agreement, 1995.

Kinhill Engineers Pty Ltd, 1993. Wet Tropics of Queensland Structural Adjustment Package - Program Evaluation Final Report. Department of the Environment, Sport and Territories, Canberra.

Management Scheme Intergovernmental Agreement for the Wet Tropics of Queensland World Heritage Area, 1995.

Wet Tropics Management Authority, 1997. Protection Through Partnerships - Policies for Implementation of the Wet Tropics Plan. Wet Tropics Management Authority, Cairns.

Wet Tropics Management Authority, 1998. Wet Tropics Management Authority Annual Report 1997-98. Wet Tropics Management Authority, Cairns.

Wet Tropics World Heritage Protection and Management Act 1993 (Queensland)

Wet Tropics of Queensland World Heritage Area Conservation Act 1994 (Commonwealth)

PRODUCTIVITY COMMISSION INQUIRY INTO IMPLEMENTATION OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT BY COMMONWEALTH DEPARTMENTS AND AGENCIES

Case Study Number 5

Australian Greenhouse Office

Introduction

The Australian Greenhouse Office (AGO) was established, initially for two years, as a result of the Prime Minister's statement of 20 November 1997 "*Safeguarding the Future: Australia's Response to Climate Change*". The Chief Executive Officer (CEO) was appointed on 9 March 1998 and the Office was gazetted as a prescribed agency under the *Financial Management and Accountability Act* on 24 April 1998.

The AGO was established to be the lead Commonwealth agency on greenhouse matters, and to co-ordinate domestic climate change policy and deliver key greenhouse response programs. The programs have been granted funding generally for four or five years, although some existing programs that have transferred across from departments are on a shorter cycle.

The AGO is in the Environment portfolio, but also administers programs for which appropriations lie in the portfolios of Agriculture, Fisheries and Forestry (formerly Primary Industries and Energy) and Industry Science and Resources (formerly Industries, Science and Tourism). In addition, the AGO is responsible for coordinating the policy aspects of some related greenhouse programs in other portfolios. Two programs that currently sit in the former DPIE portfolio and for which funding was granted in the PM's package – Energy Efficiency Benchmarking and International Greenhouse Partnerships – are particularly closely related to the work of the AGO.

The AGO was established by agreement amongst portfolios and written direction from the Prime Minister. The CEO reports to a Ministerial Council, in recognition of the whole of government nature of the AGO's mandate, chaired by the Minister for the Environment. Prior to the recent changes in government, the Council also included the Minister for Resources and Energy and the Minister for Industry Science and Tourism. The new Ministerial Council is yet to be confirmed. The Ministerial Council is supported by a Secretaries' Committee, which is currently comprised of the Secretaries of the three portfolios, the CEO of the AGO, the Ambassador for the Environment and a senior representative from PM&C. This Committee is the chief bureaucratic mechanism for co-ordinating the interests that the Office serves.

Our target

As a result of the Kyoto Protocol, Australia must limit greenhouse gas emissions in the target period 2008-2012, to no more than eight percent above our 1990 levels. To achieve this, the AGO believes there needs to be cultural and behavioural change in all aspects of Australian society.

In line with this view, governments have worked together to produce a new strategic framework for action – the National Greenhouse Strategy (NGS)– targeting all aspects of society. To be released shortly, the Strategy includes a package of existing, and additional measures, which will be implemented at all levels of government, business and community. While the AGO's response to the Productivity Commission's Questionnaire provides detailed information on the Office's key programs, it is worth highlighting that the AGO's efforts, to achieve this cultural change, are being directed towards:

- Communication and education within the community;
- Strategic measures to be based on 'good' science; and
- Monitoring and measurement.

The focus on these areas is critical as they are the links between the various programs of the AGO and provide a solid base for future action.

Coordination/consultation

Greenhouse has a much wider audience than many other environmental concerns, and an effective NGS requires the active cooperation of all sectors of industry and the whole of the Australian community. The AGO places great importance on effective consultation and partnership arrangements with other departments, stakeholders and interested parties.

The AGO uses a range of formal and informal mechanisms for consultation. Many of the forums used by the AGO were set up some years before its establishment, however representation is generally sought across all spheres, ie industry, conservation, community, business and government. The formal consultation mechanisms occur through the following bodies:

- Australian Industry Greenhouse Network
- Council of Australian Governments High Level Group (comprising senior officers from Commonwealth, State and Territory governments)
- National Greenhouse Strategy Implementation Planning Group (in establishment phase, comprising senior officers from Commonwealth, State and Territory governments and local government)
- Greenhouse Advisory Council (in establishment phase, replacing the National Greenhouse Advisory Panel and comprising key stakeholders across all sectors)
- Greenhouse Energy Group (comprising senior officers from Commonwealth, State and Territory governments)
- Greenhouse Science Advisory Council (an expert group consisting mainly of scientists)
- Expert Group on Emissions Trading (comprising experts from various fields including government and industry)
- Emissions Trading Sub Committee (comprising senior officers from Commonwealth, State and Territory governments)

- Joint Consultative Committee on Greenhouse Challenge (comprising government and industry representatives)
- High Level Steering Group on National Carbon Accounting System (comprising senior officials from Commonwealth, State and Territory governments and industry representatives)
- National Greenhouse Gas Inventory Committee (comprising senior officers from Commonwealth, State and Territory governments)

(Lists of representatives of each group are available if required.)

On a day to day basis, the AGO also liaises and works in cooperation with a number of Commonwealth departments and government agencies including: Environment Australia; Department of Foreign Affairs and Trade; Department of Agriculture, Fisheries and Forestry (formerly Department of Primary Industries and Energy); Department of Industry, Science and Resources (formerly Department of Industry, Science and Tourism); Department of Transport and Regional Services (formerly Transport and Regional Development); Bureau of Resource Sciences; ABARE and CSIRO.

Implementation of a number of AGO programs, and measures contained within the NGS, involves working with a range of Ministerial Councils and Standing Committees. For some measures these Councils are taking the lead in implementation. The Ministerial Councils include the: Australian and New Zealand Environment and Conservation Council (ANZECC); Australian and New Zealand Mining and Energy Council (ANZMEC); the Ministerial Council on Fisheries, Forestry and Agriculture (MCFFA); the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ); and the Ministerial Council for Education, Employment Training and Youth Affairs (MCEETYA).

The Community Partnerships program, for example, is one area of the AGO that places great emphasis on effective consultation processes and practices with stakeholders. It is an inherent part of the projects of the program and is proving to be an important aspect of the success and sustainability of these projects.

The Cities for Climate Protection ™ (CCP™) program has developed, as a part of its Business Plan, a Stakeholder Liaison/Consultation Strategy. The following information is drawn from that Strategy:

"CCP ™ stakeholders are those that either have a stake in the success of the CCP™ Australia program or those that can have an impact on the success of CCP™ Australia. The objective is to inform, involve and gain the support of these stakeholders as their participation may be invaluable for making CCP™ Australia successful.

Stakeholders have been identified and the individual relationship and strategy for consultation have been developed. The identified stakeholders are: Local governments (primary stakeholder), State Local Government Associations, Environmental Resource Officers, The Commonwealth Minister for the Environment, International Council for Local Environmental Initiatives, Australian Greenhouse Office, Environs Australia, Australian Local Government Association, State and Territory governments, areas within the federal government including the

former Department of Primary Industry and Energy, Department of Transport, Environment Australia, other non-profit organisations, and consultants.

The Stakeholder Strategy is linked closely to the program's Communication Strategy, which aims to keep stakeholders informed and provide avenues for consultation and participation. As a partnership program, in which responsibility for the day to day management of the CCP™ Australia Campaign rests with a contracted agency and responsibility for overall coordination lies with the Australian Greenhouse Office, the responsibility for consultation and liaison has been divided into two."

AGO As A World Leader: Greenhouse Challenge – Case Study

Australia and the AGO are taking the lead worldwide in some areas of greenhouse response. There is an opportunity for Greenhouse Challenge to be highlighted as Australia's Case Study for OECD Eco-Efficiency activities over the next 2 years. Australia will host an OECD Workshop on Eco-Efficiency from 15-18 March 1999. The first report of the Australian Case Study on Greenhouse Challenge will be presented at the Workshop.

The Eco-Efficiency Case Studies, to be prepared by OECD member states, will feed into the OECD's 1999/2000 work program on "Increasing Resource Efficiency". Detailed, in-depth case studies, resulting from long-term monitoring and evaluation, are needed to allow for analysis of national policies for increasing eco-efficiency.

The forthcoming program evaluation of Greenhouse Challenge and results of the Pilot Independent Verification of some Greenhouse Challenge progress reports will provide a substantial input into the initial stages of Australia's Case Study.

For detailed information on Greenhouse Challenge see the AGO's response to the Productivity Commission's Questionnaire.

Data Underpinning The Work Of The AGO

The primary data used by the AGO relates to measuring and monitoring of Australia's greenhouse gas emissions. Uncertainties associated with emissions estimates for the National Greenhouse Gas Inventory (refer to accompanying press release), the main data source for monitoring levels of greenhouse gas emissions, vary across and within the different sectors.

Factors which contribute to the uncertainty of the data are:

- lack of accurate statistics; and
- inadequate knowledge of the processes.

In addition, a considerable amount of other collected information in relation to greenhouse is qualitative in nature rather than quantitative.

In general, where official statistics are collected the data is good. However, one difficulty is that national collection agencies may modify or omit collecting some data, as their use may be narrower than the AGO's or collection is too difficult and expensive. Restoring data collections or generating new collections require considerable resources.

Australia's geography also poses a number of difficulties. As an example, robust data to estimate emissions in the agricultural sector are particularly difficult to obtain. Critical inputs of animal numbers and liveweights are extremely problematic. Animals are run in the tropical far north to the temperate south, which imposes significant differences on rearing and liveweights. Animal numbers and liveweights contribute the major component uncertainties (about 70% and 25% respectively) to their emissions.

With methane emissions from livestock contributing about 12% of total emissions and an uncertainty of about 30 to 50 % using expert assessment based uncertainty estimation approaches, this is an important area to concentrate on.

The Land Use Change and Forestry (LUCF) Sector is also a major contributor to Australia's emissions profile. Australia has put considerable effort into progressing the data set for this sector, much more than other countries. However, there are still significant uncertainties in the data.

For more detail on data collection, methodology, inventory compilation and uncertainties please see the attached paper which was presented at an International Panel on Climate Change (IPCC) Expert Meeting in October this year: *Managing Uncertainties in Australia's National Greenhouse Gas Inventory, AGO, October 1998.*

Monitoring of measures contained within the National Greenhouse Strategy, and its predecessor the National Greenhouse Response Strategy, is also an important part of the AGO's operation. At this stage it is difficult to measure the effectiveness of established measures in reducing emission levels due to:

- the long time lag between implementing measures and having a measurable effect;
- establishing causal links; and
- the difficulty in separating anthropogenic and non-anthropogenic sources of emissions.

This is an area of priority for future reviews of the NGS.

Achieving ESD

While the AGO recognises the efforts demonstrated by all governments, industry and the community to address ESD and the greenhouse issue, there are a number of matters, as follows, which need to be considered in formulating Australia's ESD action:

- A crucial factor in the achievement of ESD is gaining commitment to both principles and action at the level of government decision making. This can be affected by:
  - the extent to which major economic policy announcements take account of environmental and social considerations; and
  - the ability of governments to develop and implement ESD policies for the different sectors of the economy, such as a Sustainable Energy Policy for Australia and a Sustainable Transport Policy for Australia (currently being developed by the Department of Transport and Regional Services).

- The development of Commonwealth initiatives which may express inconsistencies. (For example, the current taxation reform proposals have implications for greenhouse gas emissions from the transport sector.)
- Government policy formulation and decision making processes would be improved by recognising that all Commonwealth departments and agencies have responsibility for ESD implementation.
- The need to reflect in government legislation a consideration of ESD and from the AGO viewpoint, greenhouse issues in particular.

Summary

As the AGO is relatively newly established its effectiveness is yet to be measured. However, from the range of consultation processes that have occurred, indications are that all spheres have welcomed the introduction of an all of government approach to greenhouse and the establishment of a lead, national agency. Additionally, input from stakeholders to our corporate planning process indicated that the AGO will be successful if it:

- Encourages partners across Australia to take early action to reduce our national greenhouse emissions.
- Works with community, industry and government to develop competitively priced and ecologically sustainable energy services.
- Improves the knowledge base on climate change, so that we can clearly evaluate and report on Australia's progress towards the Kyoto target.
- Helps Australia's land-use and forestry sector by promoting greenhouse action on the land.
- Creates a professional, independent and high performing organisation that delivers results for Australia.

Australia is committed to the Kyoto Protocol. The AGO will play a key role in assisting Australia to meet the Kyoto target while ensuring that Australia's hard won competitiveness is not eroded.

Productivity Commission Inquiry into the Implementation of Ecological Sustainable Development by Commonwealth Departments and Agencies

Environment Assessment Case Study No. 6

PART 1 - COMMONWEALTH FISHERIES (SOUTH EAST TRAWL)

Background

The South East Trawl (SET) covers Commonwealth waters from about Sydney to Adelaide and is one of Australia's richest and most heavily exploited fisheries. The SET is a complex trawl fishery, with over 80 species of commercial value. However, some 22 species, or species groups, make up about 95 per cent of the catch. Annual landings and gross value (point of first sale) were 24 600t (A$56m), 24 500t (A$51m) and $23 950 (A$48m) in 1994, 1995 and 1996 respectively.

Commonwealth fisheries, including SET, are managed by the Australian Fisheries Management Authority (AFMA) under the *Fisheries Management Act 1991* (FM Act). The FM Act imposes an obligation upon AFMA to develop management plans for all fisheries, and manage them in accordance with ESD objectives.

Commonwealth Involvement In Environmental Matters

Rationale for Environment Australia's Involvement

The development and implementation by AFMA of fishery management plans is environmentally significant and requires environmental impact assessment (EIA) under the *Environment Protection (Impact of Proposals) Act 1974* (EPIP Act). AFMA referred the SET plan for examination under the Act on 11 June 1996 and an environmental review was undertaken by the Department. This review essentially considered the environmental implications of the fishery, and likely compliance with ESD, to assist in future Commonwealth decisions in respect to the plan. The Minister for the Environment subsequently accepted this review as satisfying the requirements of the EPIP Act in September 1997.

Outcome of Environment Australia's Involvement

The Department's review concluded that, while there were clearly a number of significant issues associated with the SET and achievement of ESD in this fishery, AFMA had generally set in train, or proposed, satisfactory management measures to address ESD issues over time. Conclusions in regard to ESD included:

- the concept of ESD, in its broadest fishery sense, includes consideration of sustainable levels of natural capital (reliable, precautionary stock assessments), an understanding of ecological interactions (bycatch etc), sustainable fishing methods; and maintenance of the stock of environmental assets such as clean

water, maintenance of plant and animal species diversity etc (including conservation of key areas);

- a key management issue is determining the biomass to be left after harvesting to fulfil ESD sustainability objectives. Where good stock assessments are available this is done by establishing a biological reference point, and provides a suitable basis for management;
- adequate stock assessments are not available for most species in the SET, and management is based on historical take. This does not give any confidence that ESD objectives are being achieved. However, the current management mechanism does allow unsustainable harvesting to be detected and remedial measures (normally through reduced quotas) to be implemented;
- a critical difficulty in managing for ESD is the finite availability of research funding. Recognising that funding will always be a constraint, research priority should be given to improving stock assessments. High priority should also be given to identifying and protecting critical marine areas within the SET area (eg because of their unique, or high, biodiversity values, or breeding value); and
- the SET management plan is just one vehicle for addressing environmental and ESD objectives. Wider AFMA and Government management initiatives are just as important.

Incorporation of ESD Goals and Principles in Decision Making

It is important to note that EIA of a single project by itself, particularly relating to management of natural resources, is unlikely to be able to reach meaningful conclusions in regard to achievement of ESD. In order to do this, it is usually necessary to examine and understand the entire management and decision-making framework and where the proposal fits in. This is well demonstrated in the case of the SET EIA, where examination of the fishery in isolation of broader AFMA management regimes and initiatives may have led to an uninformed assessment. So called 'strategic' assessments (eg examining the overall management framework and decision-making processes for classes of projects) are likely to be more efficient and effective in addressing ESD issues.

Performance Management

AFMA's performance in achieving ESD is subject to regular review by external agencies, including under the EPIP Act. However, more transparent mechanisms to include the general public in such reviews appear desirable.

References

Environment Australia, September 1997, *Environmental Review—South East Trawl Fishery Management Plan*

PART 2 - PROPOSED REPLACEMENT NUCLEAR RESEARCH REACTOR AT LUCAS HEIGHTS

Background

The Commonwealth Government announced on 3 September 1997 that it would fund the construction of a replacement reactor.

Commonwealth Involvement In Environmental Matters

Rationale for Environment Australia's Involvement

The proposal has been referred for assessment under the *Environment Protection (Impact of Proposals) Act 1974* (EPIP Act) and the Minister for the Environment directed that an Environmental Impact Statement (EIS) be prepared by the proponent (Australian Nuclear Science and Technology Organisation, ANSTO).

Guidelines for the content of the EIS were prepared by the Department and made available for public comment in late 1997. The guidelines require the proponent to address 'compliance with the goals, objectives and guiding principles of ESD as set out in the National Strategy for Ecologically Sustainable Development'.

The draft EIS has been completed by ANSTO and is currently out for public review from 17 August to 9 November 1998 (12 weeks). Following the receipt of public submissions, ANSTO is required to prepare a final EIS addressing the issues raised. The Department will then prepare an assessment and advice on the environmental acceptability of the proposal, including compliance with ESD.

Outcome of Environment Australia's Involvement

Given that the EIS process is yet to be completed, it is not possible to comment on compliance with ESD. However, it is useful to briefly review the approach taken by ANSTO in the draft EIS.

ANSTO reviewed the proposal against the following ESD criteria: precautionary principle; inter-generational equity, conservation of biological diversity and ecological integrity; and improved valuation and pricing. The methodology was essentially to consider all impacts and how these might be addressed in an ESD context. While the draft EIS contains much specific detail, elements of the approach include:

- precautionary principle: threats of serious or irreversible damage were identified and assessed in detail, and mitigation measures identified. A cumulative impact assessment was done to ensure synergistic and future threats were taken into account. The main threat is radiological contamination and this was addressed by using worst case scenarios and well validated models to reduce uncertainty (the Department has also commissioned peer reviews of this modelling to check the assumptions used etc);
- equity: the draft EIS noted potential benefits to society from any new reactor (eg radioisotopes used in medical procedures), but also significant costs associated

with long term management of nuclear wastes. This is particularly pertinent to the ESD concept that the current generation should not pass the legacy of their decisions to future generations. The draft EIS examined, and proposed, measures to help ensure that wastes did not pose a risk, or costs, to future generations;

- conservation of biological diversity: Possible impacts on species of local, regional and State significance were assessed, and the conservation significance of the reactor site and buffer zone identified; and
- valuation and pricing of resources: Community values were identified and assessed, and non-quantifiable costs identified.

Incorporation of ESD Goals and Principles in Decision Making

Compliance with economic interpretations of ESD are difficult for public sector proposals of this nature. This is because Governments may make a decision to fund certain developments for the 'national good', regardless of costs. Different sectors of the community are also likely to place different values on environmental costs and benefits. The same will be the same for ESD considerations.

For example, the draft EIS states: 'For those members of the community who consider that these risks [from the reactor] are acceptable, then the expected health benefits of the proposal would compare favourably or outweigh the risks from exposure to radiation from the reactor'. The EIS also acknowledges: 'For those...who consider any risk to be unacceptable, the identified hazards and risks [would not] outweigh expected health and other benefits to the national community'.

The conclusion of the draft EIS is also relevant in this context: 'The relative importance that should be placed on [the reactor] costs and community concerns compared to the need and benefits of the proposal is ultimately a matter for judgement by the Commonwealth Government when considering the results of this draft EIS, public submissions and the Final EIS'.

The above illustrates a typical dilemma in environmental impact assessment—ultimately it is not possible to 'quantify' whether or not a proposal should proceed; it usually boils down to a careful weighing up of the information base and reaching a 'judgement' on the acceptability of the proposal based on the limited information available. A strength of the EIA process is that it allow other values and considerations to be raised and injected (by the public) into the overall decision making process. The EPIP Act also provides a mechanism for the 'judgement' on environmental acceptability to be fed into the overall decision making process (eg where national, industry, political or other considerations are also taken into account by the action Minister).

It is suggested that a similar approach to ESD may be required, in that decisions can only rely on best science and take into account a wide variety of views and value judgements.

Performance Management

Achievement of biophysical ESD objectives will be through the independent review and audit of an Environmental Management Plan, if the proposal proceeds.

References

PPK Environment and Infrastructure, August 1998, *Draft Environmental Impact Statement—Replacement Nuclear Research Reactor*

PART 3 - BRADSHAW FIELD TRAINING AREA

Background

The Department of Defence has purchased the pastoral lease for Bradshaw Station and propose to develop the property as a military training area.

Bradshaw is of a large scale (8,700 km^2 *cf* ACT 4,067 km^2) with places and items of conservation significance widespread but not uniformly distributed. Bradshaw has regional environmental significance as it contains 70% of the bioregion's rare and endangered species.

Commonwealth Involvement In Environmental Matters

Rationale for and outcomes of Department's involvement

The Minister for Defence designated the proposal under the *Environment Protection (Impact of Proposals) Act 1974* (EPIP Act). Subsequently, the Minister for the Environment directed an EIS under the EPIP Act on 17 January 1997.

The Minister for the Environment has provided his recommendations to the Minister for Defence for his consideration.

Inter and intragovernmental coordination

The Minister agreed to joint assessment with the Northern Territory Government, with the assessment to be led by the NT Department of Land, Planning & Environment (DLPE).

An EIS Coordination Committee was established to facilitate the EIS process and ensure that statutory and policy obligations were taken into account by Defence. The Committee consisted of representatives from the NT DLPE, Environment Australia, Defence and their consultants.

Incorporation of ESD goals and principles in decision making

One of the Defence's objectives of the proposal is to implement environmental management practices to ensure the sustainable use of the land. To assist Defence in achieving this objective, Environment Australia brought to Defence's attention the following issues:

- Bradshaw Station's very high wilderness rating according to the National Wilderness Inventory.
- Strong prima facia case that the majority of Bradshaw warrants listing in the Register of the National Estate.
- Significant number of faunal species contained in international and national lists of conservation significance that are known to occur on Bradshaw.
- Large scale of Bradshaw coupled with the range and frequency of activities will result in cumulative impacts.

- The planning and selection of activities on Bradshaw will extend beyond the life of the EIS process. Commonwealth environmental concerns and Aboriginal consideration should be made available to Defence as part of their planning processes.

In response Defence agreed to:

- Develop jointly with the AWHG, suitable guidelines for the management of wilderness areas.
- Examine prudent and feasible alternatives for the siting of infrastructure and the implementation of military activities.
- Conduct additional surveys to address the concerns of the AWHG and the Biodiversity Group.
- Establish monitoring programs in consultation with relevant government agencies to ensure that appropriate monitoring methods and performance indicators are adopted to ensure that cumulative environmental changes (both positive and negative) are recorded over time.
- Include Environment Australia and Aboriginal Communities representatives on the Environmental Advisory Committee (EAC) for Bradshaw whose role is to provide advice in the strategic management of Bradshaw. Other stakeholders to be represented on EAC are from NT government and the local council.

Other management processes and tools Defence will use to achieve the above objective include:

- A strategic environmental management plan to guide the long-term management of Bradshaw.
- GIS to store, manipulate and interrogate data and assist in the identification and analysis of cumulative environmental changes.

The public were involved in the assessment process through the public exhibition of the 'Guidelines for the preparation of the EIS for Bradshaw Field Training Area' and the 'Draft EIS for BFTA'. Public comments were taken into account in finalising the guidelines for the EIS and the Environment Australia's report and advice to the Minister. Environment Australia used its web page on the internet to disseminate information on the EIS process to the public.

Performance Management

Environment Australia recommended a environmental status report be prepared for Bradshaw within 3 years and forwarded to Environment Australia for review in accordance with the EPIP Act. The purpose of the environmental status report will be to review the environmental aspects of Defence's management of Bradshaw and Defence's implementation of the recommendations made by the Minister for the Environment arising from the EIS process.

Productivity Commission Inquiry into the Implementation of Ecological Sustainable Development by Commonwealth Departments and Agencies
Environmental Information

Good environmental information is a critical input for decisions with significant ESD implications. It has been central to the success of policies in areas such as forests. This paper briefly examines the availability and use of environmental information. Part 1 covers environmental information sources and collection, and Part 2 looks at state of the environment reporting and environmental indicators.

Part 1

General Information For Ecologically Sustainable Development

An increasing range of environmental information is becoming available for ESD policy development and decision making. Technological developments have improved the access to information. These include Geographic Information Systems (GIS) and networked information technologies. This in turn has led to an increased activity in the compilation and use of existing information bases, rather than the collection of new information specifically designed to meet the decision making agenda.

- A key program which has used environmental information as an explicit input to the decision making process has been the Comprehensive Regional Assessments undertaken to support the Regional Forest Agreements. These have involved the detailed development of options which allow for the conservation of forest regions of environment and heritage values, which incur the least social and economic cost. This has been achieved through the collection and compilation of a large amount of information on threatened species sites, ecological communities and heritage sites, as well as satellite imagery. This information is then analysed and modelled to assist in the development of options for reservation, or other management regimes, which ensure the conservation of areas with significant environment and heritage values.

- Another major use of environmental information is in national reporting processes such as the State of the Environment report, the National Greenhouse Gas Inventory, and the National Pollutant Inventory. These programs collect some data in their own right, to meet specific national and international reporting agendas.

Sources of data

The data that is used in decision making and reporting is largely collated from other sources, either through direct purchase or an exchange arrangement, and then aggregated and/or modelled on a national basis. Frequently the data are drawn from state governments, which have ongoing institutionalised data collection arrangements. This ensures that the data is maintained, and as up to date as possible,

which is crucial if the data are to be used in decision making, such as determining which areas of forest to conserve, and which areas to log. Research data are often collected for one-off purposes, and may be used in considering particular issues.

The major current national database exercise undertaken by the Commonwealth is the Register of the National Estate. Other databases include important wetlands, protected areas and biogeographical regions. These databases are used in a range of decision making processes. The Register of the National Estate, for instance, is required to be consulted for various Commonwealth activities which may impact on heritage sites, such as telecommunications activities. Currently there are few statutory obligations for the Commonwealth which apply to other types of environmental data. The exceptions are the obligations under the Constitution and for the Bureau of Meteorology.

The new Environment Protection and Biodiversity Conservation Bill will create a need for better and more accessible data. While responsibility for providing information on which the Minister will decide whether to approve an action under the new Commonwealth environmental legislation rests with the proponent, the Department intends to provide a range of information products to support decision making and assist proponents.

Currently, DoE is funding the compilation of a database which will contain the best available information. The data will be drawn from field observations, usually from institutionalised databases, either government or non-government. It will be used in association with a set of procedures which explicitly inform any users about the underlying uncertainties, and the need to gather ancillary information on a case-by-case basis.

Data shortfalls

A major shortfall in achieving the conservation of Australia's biodiversity is the knowledge of where threatened species and communities occur, so that funds can be directed to conserving their habitat, or reducing their threats in some other way. Another major information gap is a knowledge of the distribution of Australian vegetation, at a useable scale. This would include distribution of remnant vegetation, vegetation type, structure and species composition. This basic information on vegetation is required by a number of programs, to either manage the vegetation better, to ascertain where funding would be best expended

Data Collection

Most national environmental databases are collated from other sources. These are frequently government sources, but may also be non-government sources, such as the Birds Australia Atlas. A critical requirement for data that is to be used for decision making is that it is collected under some form of standardised accreditable process[1]. If standardised processes cannot be cited, the use of data will be open to

[1] Once the data enters a national set, it is difficult to validate or check, due to the large amount of data involved, and the dissociation of the compiler. Whilst individual data items may have a level of

question. If standardised processes are used, then the inherent error which always lies within environmental databases can be assessed, and the data can be used if the uncertainty values are judged to be acceptable.

The need for up to date data is also leading to the development of distributed databases, where the data is maintained at source, and drawn together through a computer network in real time. Such networked information systems are likely to increase the accessibility of up to date data. At a National level the Australian and New Zealand Land Information Council is developing an Australian Spatial Data Infrastructure to facilitate such systems for any spatially referenced data (including environmental data). This infrastructure includes national metadata standards and universally accessible metadata directories and has recently resulted in the development of distributed data networks by cooperating state and federal agencies. This is likely to develop into fully distributed databases. At the Commonwealth level this work is coordinated through the Commonwealth Spatial Data Committee.

A critical issue in the formation of databases to support national decision making is determining the scale of resolution required, and the level of other detail required. In some cases, national data sets can be summarised forms of more detailed data set. This can be a negotiating point which allows summary data to be accessed, while detailed data remains with the custodian. This concept will be well supported through the development of distributed databases. A key priority for this is the standardisation of information.

Conclusions

There are substantial data gaps, which vary, depending on changing priorities of environmental programs and policies. For practical purposes the use of available information has high priority than new collections.

Access to information is critical, and there are many barriers to access. Distributed databases, and summarised databases, are overcoming some of the difficulties.

Satellite imagery and modelling offer ways of optimising the collection of field data. These existing information bases need to be standardised, and if possible aligned to meet current priorities. Current priorities for the Department of Environment and Heritage are threatened species and vegetation data, to support implementation of its policies and programs.

Part 2

State of the Environment Reporting and Indicators

The Commonwealth State of the Environment (SoE) Reporting system supports the National Strategy for Ecologically Sustainable Development and helps Australia

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error, it is important to understand and explicitly describe the level of error across the dataset as a whole.

meet its international obligations, such as those under Agenda 21 and the OECD environmental performance reviews. The first independent and comprehensive assessment of Australia's environment, Australia: State of the Environment 1996 was released by the Commonwealth Environment Minister in September of that year. The next step in the evolution of the reporting system is to develop a set of environmental indicators that, properly monitored, will help track the condition of Australia's environment and the human activities that affect it. To help develop these indicators, Environment Australia has commissioned independent reports[2] recommending indicators for each of the seven major themes around which Commonwealth state of the environment reporting is based. The themes are:

- human settlements
- biodiversity
- the atmosphere
- the land
- inland waters
- estuaries and the sea
- natural and cultural heritage.

None of these themes is independent of the others. Issues relevant to more than one theme receive detailed treatment in one report, with cross-referencing to other reports. The reports recommend a comprehensive set of indicators, not all of which are practical to implement in the short term. They are, however, a scientific basis for longer term planning of environmental monitoring and related activities.

An eighth report, deals with the use of the recommended indicators by local or regional environmental managers and with the role of the community in indicator work.

The advice embodied in these reports is being used to advance state of the environment reporting in Australia, and as an input to other initiatives, such as the National Land and Water Resources Audit and the Australian Local Government Association's Regional Environmental Strategies.

From this work the Department is identifying indicators for which data exist and which can be readily used. These indicators will form an important part of the next series of national assessments on aspects of Australia's environment.

Even where data for indicators exist and are available freely, resources are required to extract, put into useable form, analyse, and interpret the data. Hence, although a lot of effort and resources may have already been put into collecting some data it does not follow that these data can be used without further application of resources. A present consultancy to assemble and interpret existing data on exotic species cost $120,000, even after targeting it tightly and excluding all plants. There are similar costs to assemble existing data on topics such as marine disturbances, water quality and fire regimes.

[2] These reports are advice to Environment Australia and have been peer reviewed to ensure scientific and technical credibility. They are not necessarily the views of the Commonwealth of Australia.

The indicator reports are also being used by the ANZECC SoE Taskforce to establish a core set of environmental indicators applicable across jurisdictions. The aim of this work is to bring greater national coherence to SoE reporting between the Commonwealth and the states.

Fragmentation of data

A phenomenon which is causing increasing concern to environmental managers is the increasing fragmentation and privatisation of data. The 1996 Report lists the breakup and corporatisation of water authorities with the consequent fragmentation of water data as an inhibitor of effective management. Also, commercial entities may restrict access to data on commercial in confidence grounds.

Research institutions, including CSIRO, are being required to raise increasing proportions of their funds from outside sources. An effect of this trend is that increasing amounts of the best scientific information are becoming "commercial-in-confidence" and thus not available for public use such as SoE reporting. A related effect is that a decreasing proportion of research resources are being devoted to long term ecological research which is essential for better management of the environment. In other words there is an erosion of the intellectual capital necessary for improving environmental management.

The use of SoE indicators in measuring programme performance, policy implementation and the better use of targets.

The Department is working to more closely tie SoE indicators to programme performance and policy implementation. Performance indicators in NHT programs are being closely linked to SoE indicators, so that the same information can be collected once and used for both purposes. The seven indicator reports provide an important scientific basis for identifying such indicators. A similar exercise in matching SoE indicators to policy implementation measures in the National Biodiversity Strategy, is proving to be equally promising. This process also helps to identify areas where specific targets can be set, to allow both reporting and policy implementation to become more quantified.

A related exercise currently underway is to identify all established national environmental goals and targets. These are being tied to SoE indicators as far as possible so that increasingly reporting can be against established goals and targets.

In conclusion there appears to be considerable scope to develop environmental indicators which are suitable for policy purposes, where sufficient resources can be mobilised.