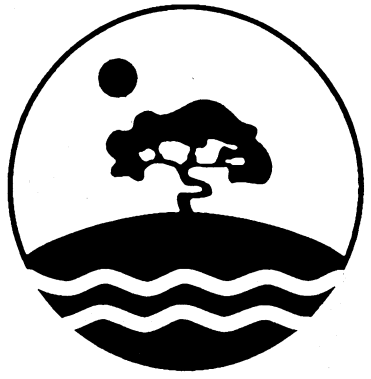
Towards Better Practice State of Environment Reporting

Proceedings of a National Environmental Law Association (ACT Division) Seminar September 1996



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Contents

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About the Editors

Rosemary Cousin has undergraduate and post graduate qualifications in Applied Science, Urban and Regional Planning from the RMIT. Her particular interest in environmental management and balanced regional development first began in 1974 when she joined the newly formed Friends of the Earth Australia. With over 13 years experience in state and local governments in Victoria and Queensland. Until June 1997, Rosemary was Assistant Secretary in the Federal Department of Transport and Regional Development, after having worked on the *Better Cities Program* with the former Federal Department of Housing and Regional Development. In July, Rosemary accepted a position with the State Government of Victoria, as Director, Planning Systems and Management Reform, Department of Infrastructure. Ms Cousin is a Member of the Royal Australian Planning Institute, the Institute of Public Administration, the ANZ Regional Science Association, the ACF and Royal Ornithological Union of Australia, and has been a member of the National Environmental Law Association (ACTDivision) Executive since September 1995. In 1993, Ms Cousin co-authored a joint Brisbane City Council Office of Economic Development and KPMG Peat Marwick publication: *A Compendium of Federal, State and Local Government Incentives for Economic Development in South East Queensland.* She has more recently written on subjects of integrated strategic and corporate planning, benchmarking and performance indicators for urban and regional management.

Christian Fabricius obtained a post-graduate law degree from the Australian National University in 1981 and is currently working as a consultant for the Australian Institute of Aboriginal and Torres Strait Islander Studies, preparing a users' manual on the application of native title legislation in Australia. He wrote and edited the *Guide to Environmental Legislation in Australia and New Zealand* which as published by ANZECC in April 1994. He worked in the Legal Section of the Department of Environment Sport and Territories from 1989 to 1994, where he participated on the working group for the drafting of legislation for the establishment of the National Environmental Protection Council. From 1994 to 1995, he was seconded to the National Capital Authority as Senior Legal Officer, prior to working in the International Unit of Environment Australia (September 1995 to April 1997). Mr Fabricius has been a member of the National Environmental Law Association (ACT Division) Executive since September 1995.

Published By

National Environmental Law Association, ACT Division

"To promote the understanding of the role of Environmental Law in regulating and managing the conservation of the Environment"

About the Contributors

DR JOE BAKER is the *ACT Commissioner for the Environment*. Trained as a natural product chemist (working first on essential oils of Australian eucalypts, then on marine environment searching for biologically active substances). In 1993 he received the Royal Australian Chemical Institute's most prestigious award - the Leighton Medal and was the 1995 Adrian Albert lecturer. Involved in coastal processes, and resources and environmental studies since the early '70's. Dr Baker has been appointed member and chairperson of various committees, including the Great Barrier Reef Marine Park Authority (1975), the UNESCO Special Program Committee for the World Heritage Convention, the Australian Heritage Commission, the Trust of the Australian Museum and several national and international UNESCO groups.

Dr Baker is currently Chairman of the National Landcare Advisory Committee; the Management Committee of the Community Rainforest Reforestation Program; the National Advisory Council on Environmental Employment Opportunities; the North Queensland Economic Committee (Queensland) and the National Committee for the Environment (of the Australian Academy of Science). He also retains his research activities as an Honorary Fellow of the Australian Institute of Marine Science in Townsville and is President of the Federation of Australian Scientific and Technological Societies.

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Professor Brown has held senior positions in research, teaching and administration in environmental science and public health; and is author and editor of over sixteen books and monographs on local-to-global health and environment issues (including *Acting Globally: The Changing Role of Local Government in Integrated Environmental Management and Risks and Opportunities: Managing Environmental Conflict and Change Earthscan)*. Her latest publications include *Landcare Languages: Talking to each other About Living with the Land* and *Getting Ahead of the Game: An Anticipatory Approach to Cleaner Production in Local Government*. Prof Brown is a past member of the National Health and Medical Research Council and the CSIRO Advisory Council, and a current member of the Foreign Affairs and Trade Non-Government Consultative Forum on Environmental Issues.

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MS DIANE DIBLEY is *Director of the Sustainable Industries Office* of the Australian Conservation Foundation. She is a Barrister, former legal Counsel of MTIA and lecturer in Constitutional and Environmental Law at the University of Canberra. Ms Dibley is responsible for the production of a number of training materials in environmental management including the MTIA's "Watching your Wasteline" and is currently working with Coopers and Lybrand on a generic in-house training program on environmental management.

MR PHIL HERRICK has been *Community Relations Manager, Eurobodalla Shire Council*, since 1980. The Shire covers a section of the South Coast that includes Bateman's Bay, Moruya and Narooma with the second fastest growth rate in NSW. As well as managing the community relations program for the council, Mr Herrick coordinates and writes the Council's State of the Environment Report and Annual Report, and is a key member of the team which prepares the Council's Management Plan. Mr Herrick is also on the steering committee developing the Regional State of the Environment Report for the south east coast of NSW. Mr Herrick studied Geography at the Australian National University and worked as a journalist before moving into local government.

PROFESSOR ROBERT KEARNEY is *Professor of Environmental Science and Head of School of Environmental and Heritage Sciences at the University of Canberra*. He has worked in approximately 40 countries

throughout the world reviewing natural resource research and management, primarily in fisheries, and advising governments and organisations on research, development and management priorities. His personal research has concentrated on the assessment of fisheries resources in oceanic and coastal areas, the implications of resource ownership and use, and the role of scientists in society. He is the author of more than 100 scientific and technical publications. In 1986 Professor Kearney's contribution to international fisheries research and management was recognised by the awarding of the degree of Doctor of Science by the University of Queensland.

PROFESSOR IAN LOWE *chaired the State of Environment Advisory Council for development of the 1996 National State of Environment Report.* He is a Professor of Science, Technology and Society and former Head of the School of Science at Griffith University; and holds a B.Sc. from the University of NSW and a PhD from the University of York. His principal research interests are in the broad area of policy decisions influencing use of science and technology, especially in the field of energy and environment.

Professor Lowe has written four books, 301 book chapters and over 400 publications and conference papers; and he contributes frequently to radio and television programs. As a member of the National Energy Research, Development and Demonstration Council (1983-'89) he chaired the Standing Committee on Social, Economic and Environmental Issues. In 1988 Prof Lowe was seconded from Griffith University as Acting Director of the Commission of the Future. He also chairs the Queensland Health Promotion Council and is a member of several other advisory bodies including the National Greenhouse Advisory Panel, the Commonwealth Administrative Review Council and the Queensland Sustainable Energy Advisory Group. During the Australian Government's Ecologically Sustainable Development process, he was a member of the Energy Use group; and in 1988 he was named Australian Humanist of the Year.

DR HELEN SIMS assists the Office of the Commissioner for the Environment in the conduct of investigations into management of the environment by the ACT Government, and co-ordinates preparation of State of the Environment Reports, including the first State of the Environment Report for the ACT region (which covers the ACT and 17 NSW Local Government Authorities surrounding the ACT and is due in November 1997). Dr Sims has a PhD in Sociology from Queensland University and has acted in an administrative capacity in local government on Christmas Island and in land and leasing management in the ACT before taking on her current position in the Office of the Commissioner for the Environment.

Introduction

Since the 1970's, Australia, along with many other countries, has developed frameworks and instruments for monitoring and reporting on the state of the environment. The 1981 House of Representatives Standing Committee on Environment and Conservation recommended that state of environment reporting be undertaken nationally. The first national State of the Environment Reports were published by the Federal Environment Department in 1985 and 1986. The former was also tabled in Parliament and was accompanied by a more detailed "sourcebook".

These reports were heavily oriented toward the natural environment and conservation of natural resources. An important feature was that they acknowledged the institutional barriers which make effective planning and management so problematic[1].

In 1995, a state of marine environment report was released (*Our Seas, Our Future: Major Findings of the State of the Marine Environment Report*; accompanying summaries and technical annexures, were released in 1995 and 1996).

The current Australian state of environment reporting system was established in response to the *National Strategy for Ecologically Sustainable Development* which was released in 1993 to help Australia meet various international obligations arising from the UN Conference on the Environment and Development, held in Rio De Janiero in June 1992. In 1994, the Department of Environment, Sport and Territories published *State of Environment Reporting: Framework for Australia,* which set out the conceptual basis for and approach to national state of environment reporting.

Preparation of the first independent national SER, *Australia State of the Environment: 1996*, was overseen to report to the Government by the State of the Environment Advisory Council, which comprised eminent individuals and was established by the Minister for Environment, Sport and Territories in 1994. Expert reference groups were critical to the process. They developed main chapter themes with the assistance of over 290 key experts.[2]

Currently, the Commonwealth, and all States and Territories except Victoria and the Northern Territory have formal state of the environment reporting systems. In New South Wales, Queensland, South Australia, Tasmania and the ACT legislation governs the production of regular Government level SERs.

In 1983, Victoria became the first State in Australia to appoint a Commissioner for the Environment and the first Victorian State of Environment Report was released in 1987[3]. Victoria has now adopted a different strategy to report on the state of the environment: the Victorian EPA publishes results of various monitoring programs on an occasional basis; and the State Department of Natural Resources and Environment publishes, as part of their Annual Reports, issues associated with the *Flora and Fauna Guarantee Act* (which provides for species and communities to be listed).

Western Australia has been divided into 15 land and eight marine regions, and a Regional Focus Group prioritises environmental issues prior to reporting on conditions and significant current regional trends.[4]

New South Wales not only has State wide environmental reporting, but also has the most advanced framework for local government SERs. Under the *Local Government Act* 1993, local governments are required to prepare SERs as part of their strategic planning processes. The New South Wales Department of Local Government (DLG) publishes guidelines for the conduct of local government state of environment reporting.

The NSW Department of Local Government in early 1997 released a discussion paper to refine the local SER process. The discussion paper expressed concern that the majority of Councils treated the SER process as merely a data gathering exercise, rather than as a management tool for ecologically sustainable development in their area. NSW Councils are now encouraged to integrate SER into local decision making and management plans; and to work co-operatively at regional levels to pool their resources and prepare state of environment reports with a regional focus. Changes to the *NSW Local Government Act* are currently being considered to consolidate these recommendations[5].

The Australian Local Government Association also plays a role in SER. Funded by the Federal Department of Environment Sport and Territories (Environment Australia) in 1996/7 the ALGA is undertaking a national project to pilot regional state of the environment reporting. The project has four main objectives:

* To develop a framework for using environmental data collected for local environmental monitoring as an input to State and National state of the environment reporting;

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1 ADAHE (1986) *State of the Environment Report* Australian Department of Arts, Heritage and the Environment, AGPS

2 State of the Environment Reporting in Australia Report prepared for the National Biodiversity Strategy of the State of the Environment Reporting Task Force (under the auspices of the Australian and New Zealand Environment Conservation Council) April 1996

3 Helmer, Z and Bremner, A "The First Victorian State of the Environment Report" presented to the Seminar onFuture A ssessment: State of the Environment Reporting in Victoria, University of Melbourne 19 May 1987.

4 "State of the Environment Reporting in Australia" op cit

5 NSW Governm nt: *Discussion Paper: Reform of the Environment Reporting Provisions of the Local Government Act 1993* Released by the Minister for Local Government, the Hon Ernie Page MP, February 1997

* To develop a core set of environmental indicators (using the pressure-state-response model: **(See Diagrams 1 & 2 on Page 15)** for use in local, regional, state and national environment reporting;
* To assess the potential of incorporating community monitoring data into regional environmental strategies and SER reports being prepared for Voluntary Regional Organisations in SW Western Australia, the Southern region of South Australia and Far North Queensland; and
* To test the pressure-state-response model as a practical management tool at the local level.[6]

Towards Best Practice State of Environment Reporting

On 25 September 1996, the Federal Minister for the Environment, Senator the Hon Robert Hill, launched Australia's first independent national State of Environment (SOE) Report, Australia: *State of the Environment 1996*, at the Parliament House Seminar: *"Towards Better Practice State of Environment Reporting"*. This landmark SER sets the standard for State of Environment reporting in the future. **Hosted by the ACT Division of the National Environmental Law Association**, the Seminar's three objectives are summarised in the box below.

While the seminar's participants were drawn largely from professionals working in the south eastern coastal region of New South Wales and the ACT, many important messages were raised of direct relevance to State of Environment reporting throughout Australia.

This Monograph presents the papers and key issues raised in discussion at the Seminar, in the interests of enhancing Australian best practice in state of the environment reporting.

Towards Better Practice State of Environment Reporting

Seminar Objectives

1. To review the current position of practice in State of Environment reporting;
2. To improve the links between national, state, regional and local environment monitoring and reporting; and
3. To improve the use of State of Environment Reports in public and private decision making.

6 ALGA(1986) *Piloting Regional State of Environment Indicators* Final Report, October 1986

Towards Better Practice State of Environment Reporting

Key Issues Raised in the Seminar

The Need for State of Environment Reports (SER) and Integration at All Levels

Monitoring and reporting on the state of the national environment is a vital step towards achieving ecologically sustainable development (ESD). In his key note address, Ian Lowe outlined the approach taken in developing the 1996 national SER. Joe Baker spoke of ground breaking work in the ACT and its surrounding region to develop an effective regional SER, compatible with ACT and local government SERs. The ACT is working closely with local governments in the south east region through a Regional Leaders Forum.

Both the opportunities and difficulties facing local governments in using the Federal SER were raised by Stephen Clay. Knowledge of the Federal SER was patchy at present. Choice of indicators was another problem. Cost effective, practical SE reporting is fundamental for local government, especially in a time of low resources. Local indicators should be oriented towards consistent and integrated reporting from all spheres of government. Val Brown spoke of her long standing efforts to achieve greater integration between state of environment reporting in all spheres of government. Greater co-operation shares the effort, the costs and increases likelihood of greater success.

R fining the "Pressure - State - Response" Model

Both the latest National and ACT SER approaches have modified the OECD's traditional linear "Pressure-State-Response" model for reporting on environmental conditions. Professor Brown spoke of the need to look at natural, social, cultural and environmental indicators in state of environment reporting, and supported the need to review the linearity of the traditional pressure-state-response model. There are different types of interactions involved, and we need to be able to define a "pressureî more effectively. For example, we need to consider such issues as whether a "pressure" indicator relates to the amount of lead in the atmosphere or the number of vehicles in use.

SER and Environmental Impact Assessments

Data collected during impact assessments is an invaluable benchmark and source of indicators for later state of environment reporting. Ian Lowe emphasised the need to draw closer connections between state of environment reporting and Environmental Impact Assessments.

Furth r Dev lopment of Performance Indicators and National and Local Data Bases

Systematic solutions to environmental challenges are called for. Environment Minister Robert Hill emphasised the need for a systematic approach, and foreshadowed the next stages of development in federal state of environment reporting, including establishing environmental indicators and developing a national data base. Minister Hill also spoke of the importance of using SER data in formulating public policy and the need to encourage different levels of government and the community to be actively involved in environmental monitoring.

Neil McKenzie considered that establishing a survey framework (such as a good land resource survey) was essential before monitoring. Drawing out predictions from state of environment reporting is also essential. What is needed is a proactive program and institutional framework for follow up action; with realistic short term as well as longer term responses.

Phil Herrick outlined the origins of the NSW requirement for local government's annual state of environment reports. He provided a practical example of how local state of environment reporting can be integrated into Council decision making building on land survey data through the use of GIS and other computer based information systems. In this way, State of environment reporting is not an end in itself, but a practical tool for day to day decision making.

Helen Sims said the ACT regional state of environment reporting was tackling the very intricate issue of co-ordination

of data collection and reporting amongst a host of players: government, semi- and non- government and communities.

Dr Sims' view was that more ideas were needed on the best forms of state of environment reporting and standards to use for setting indicators.

State of Environment Reports and Environmental Decision Making and Action

SERs should include recommendations for short and longer term response to key issues or trends identified in the reporting process. Joe Baker spoke of the role of the ACT Commissioner and the ACT SER in promoting opportunities to attract sustainable development and positive environmental solutions, not just identify environmental problems.

In the ACT, data is synthesised and analysed to produce annual reports, although three yearly reporting cycles are considered much more resource efficient, and a simplified reporting structure over a wider timeframe is now proposed. Indicators are the principal subject of investigation. The main challenge is to develop reliable indicators that explain what is happening locally and explore links between local conditions and issues at State, national and international levels.

Response to data presented in SERs must be timely. Robert Kearney re-inforced the need to convert SERs into management plans, but pointed out that sufficiency and cost are the major problems faced in data collection, and the use of indicators in future will increase demand for better data.

Community Participation In State of Environment Reporting

Community involvement in state of environment reporting, data gathering and environmental action, was a consistent theme throughout the seminar. Minister Hill saw this as an essential prelude for community participation in, and acceptance of action to, resolve environmental problems. Helen Sims recommended a review of grants to encourage and assist community involvement in state of environment data collection and monitoring.

Hierarchies of Indicators

Professor Lowe emphasised the need to have hierarchies of indicators, some that are national, some that are at the state or regional level, and some that are very specific at the local level with different uses for the different indicators.

Independence of SE Reporting

Professor Lowe said the Federal State of the Environment Advisory Council welcomed the degree of independence that was allowed in the process of formulating the 1996 National State of Environment Report. Helen Sims echoed this need for independence in SE reporting. The ACT experience shows that state of environment reporting is an essential management tool to continually help planners and decision makers; but it needs to be an independent and objective statement to be truly effective.

State of Environment Reporting, Environmental Law and Environmental Economics

There was a consistent view that legislation should underpin state of environment reporting. Dr Sims emphasised the need for an institutional framework for data collection which was emerging as a significant issue in the formulation of the ACT Regional State of Environment report. Dianne Dibley saw such a legislative framework as a significant means of ensuring greater consistency in data collection. Ms Dibley also urged professionals to embrace environmental economics in its entirety. State of Environment Reporting should be linked directly to environmental accounting and green national accounts.

Further Work to Develop Urban Environment Indicators

Dr Sims noted that the *1994 ACT State of Environment Report* reported on some aspects of the state of the urban environment. There is room for much further development of urban environment indicators in Australia. Some key questions are "which indicators are most relevant to monitor in future?" and "what values do we place on different attributes of urban environments?"

State of the National Environment

Opening Address

Senator The Hon. Robert Hill MP
Minister for the Environment

It is a pleasure to open this seminar of the National Environment Law Association, ACT Division, and a pleasing coincidence that we are able to use the occasion to launch the whole of the Commonwealth's new State of the Environment Report. An Executive Summary was released some time ago, but preparation of the total book has taken longer. I am very pleased to be able to launch the full Report today in conjunction with your Seminar. I am also able to congratulate Professor Lowe who was Chairman of the State of Environment Advisory Council that did the work on this Report.

The *1996 State of the Environment Report* is by far the most comprehensive investigation and report on the state of our environment in this country that has ever been prepared. It took some two years and two million dollars to prepare. It was initiated by my predecessors and I have said on a previous occasion that I congratulate them for that. It was a good initiative and provides us with a basis of information that I believe is invaluable.

The *State of Environment Report* compliments a growing range of environmental information that is on the table at the moment. Recently I launched the latest materials from the Australian Bureau of Statistics which is endeavouring to find ways to most effectively report on the state of our environment - obviously not only to inform us, but once better informed, also to enable public policy to look at ways of improvement - ways in which we can better protect the natural environment that we have inherited.

With this Report, the work of many dozens of eminent scientists, most of which is being done voluntarily (and I thank them too for that), with the increasing volume of work through the ABS and other sources, we are starting to get a better appreciation of the state of the environment and this puts us in a better position in which to formulate public policy for the future.

The seminar today aims to further develop ways in which different levels of the community can contribute to this process, and how it should further evolve. Obviously I will be interested in the feedback from your Association as a result of today's discussions.

Professor Lowe will talk to you of the next step which is basically the further development of environmental indicators, so that we not only have a snapshot of the environment as it exists today, but also we can better assess whether in fact the situation is improving or otherwise for the future. This is our next challenge. I have observed that the same challenge has been taken both within our country and internationally, as environmental economics is more enthusiastically embraced by governments.

There was a time when governments were somewhat cautious of environmental economics to put it in its mildest form, but now it is recognised in fact, that if we are to make good decisions, they can't be based simply on economic consequences or other social consequences. They must also take into account the environmental effects of decisions. Therefore you need ways of measuring those effects. That is obviously vitally important and a challenge that is still largely before us. It is still very much an evolving science. It is good to see that we are now in that debate, and participating by providing an information base which, as I said, I believe will lead to better policy making for the future.

We have made a start. Work is being done on environmental indicators and on better measuring the effects of actions that are taken by the community or by government in terms of the cost and effect on our environment, and that is very positive.

But there is another level at which we need this base data. What we are really talking about is a more sophisticated measurement of the effect of our usage of the land and waters of this country. We committed ourselves in this last election to a very major national land and water resources audit using the best of CSIRO technology which in many ways leads the world. It is dependant, like so many other things in this area, on the sale of one third of Telstra to give us our funding base, but when we have that, we want to start the task of commissioning that audit, which will in turn add to the base material we have for sound decision-making in the future.

Governments can commission work and scientists can produce results, but it is all a little academic unless the community is part of the process. Not only the community embracing what we are seeking to do, but the community embracing the process and wishing to be part of the ultimate solution. In everything we do we try to stress, therefore, the importance of community information, and more importantly, community involvement.

I understand that members of your Association come from a range of different disciplines. This is an example of drawing the community, albeit perhaps at a fairly sophisticated level, but nevertheless, drawing the community into the intellectual debate on these matters. That enables representatives to report back. Each discipline plays a part in further developing this jigsaw, but the gathering of information, and ultimately sound environmental practice, is very much in the hands of the community at large.

I have been pleased to see, as a relative newcomer to this area, the extent to which, over the last few years, the community has become much more involved in the gathering of information. We are pleased to continue to sponsor such organisations as Waterwatch where the community actually goes out and does the measuring of their local waterways so that we have the data upon which to act in the future.

If you have the community involved in assessing the damage or the state of the environment, you very quickly move to the next phase of having the community involved in the solution and wanting to be part of the solution and implementing the changes that are necessary to not only restore our environment health, but also to ensure that we then maintain it for future generations. To further encourage community involvement, direct participation is the next step. We need to ensure that the community does not believe we are seeing them as an add-on, but rather as an integral part of the total solution. We have started this process and it is important that we continue it.

Looking at those at the front table, I am reminded of Landcare and later today, I will be announcing some grants under a number of programs which support Landcare. Landcare is a great demonstration of how, over a period of just a decade or so, the community has become not only committed to resolving environmental problems but

has demonstrated that they can actually do it. And it is a great comfort to me, coming into this portfolio now, as opposed to somebody who did ten years ago, when at that time you still had to persuade the community that not only was there a need, but that they were part of the solution.

Today, the environment is certainly very much embraced as a mainstream issue in which the community at large wants to be part of the solution, and Landcare is a demonstration that it can work in practice. It is a message for all of us here today, that whilst we intellectualise over these issues and we talk as I could about the evidence that is produced in the State of Environment Report and what it means - that is all very interesting, but unless we embrace the community and solutions, we will not achieve the best outcome.

I have to say we are also pleased to see that in the preparation of this Report, there was a very strong message that a systematic solution to environmental challenges is needed.

The bit-by-bit approach of the past is going to be insufficient when you look at the enormity of the task ahead of us; and again that gave us some comfort, because in developing the policy for the last election, we very much did it in an integrated form.

Our concept of setting up a *Natural Heritage Trust* of Australia, with a capital base of one billion dollars, is to approach environmental issues as a whole. Obviously each issue is inter-related. Certainly when it comes to the delivery of solutions, it has got to be packaged in useable form, so that, for example, we have a major package to deal with our natural vegetation initiative, not only to support the revegetation of Australia, but also to provide incentives to reduce the level of current clearing of native vegetation in this country.

The package delivers the following changes: -

* one program to look at better outcomes for our rivers, and specifically a program for the Murray-Darling, adding onto the good work that has been done there so far. In a broader sense, this program provides some Federal funding towards the whole challenge of our internal waters and river systems;
* another program to look at the challenge facing our coasts and our seas that in many ways have been degraded significantly; and
* another program that looks at our national reserve system, so we can preserve that which is most important in maintaining the biodiversity legacy that we have been so lucky to inherit in this country.

Each of these programs is inter-related, even if they are being separately structured to ensure efficient delivery. One of the messages that comes through this work is that the right approach is to look at the state of our environment as a whole, to understand how each part relates to every other part and to find solutions that therefore address it in that way.

In Landcare, and in what Australian farmers are doing, they have also now realised that what one farmer does on his land is not just relevant to his land, it affects the farmer further down the stream. And what might be just as important to the first farmer in his work, may well count for little if there is not corresponding work being done upstream. Through Landcare, communities start to work together to integrate their works to produce a better outcome.

Mr Chairman, thank you for the opportunity to say these few words to open your discussions today. State of environment reporting is not only topical but very important in the national interest. I look forward to hearing of the outcomes, which I am sure will be of benefit to us in the development of future public policy.

National State of Environment Reporting

Professor Ian Lowe
Chair of the National State of the Environment Advisory Council

The *1996 State of the Environment Report* is, in one sense, a response to the issues raised by the *Bruntland Report, the Report of the World Commission on Environment and Development*, entitled: "*Our Common Future*" which said there is a clear link between environment and economic development.

In another sense, it is an outcome of the *National Strategy for Ecologically Sustainable Development*, agreed by the Council of Australian Governments in 1992, which notionally committed the Commonwealth and all State and Territory governments to a process of sustainable development, and identified regular reporting on the state of the environment as a vital step toward the achievement of ESD. It is also a part of our international obligations arising from the 1992 "Rio" Conference - the Earth Summit - convened by the United Nations Conference on Environment and Development.

The first comprehensive, independent National State of Environment Report was completed and released recently. It establishes the principles for regular reporting, to which successive Commonwealth governments have given support. The scope of the Report is comprehensive. It covers our land, our air, our inland waters, our coastal environment and our social and cultural environments, recognising that what we value in the environment is at least partly a cultural construct. Work is proceeding on development of a set of environmental indicators to monitor progress between full-scale reports. The development of an integrated system is hampered by unavailability of much important data, as well as variations in approach between different governments. The State of Environment Report identified structural problems as a significant impediment to environmental management.

1. Rationale for State of the Environment Reporting

The principle of ecologically sustainable development (ESD) now commands widespread support in the community. The governments of the Commonwealth, and all States and Territories, are notionally committed to achieving ESD through the National Strategy for Ecologically Sustainable Development, accepted by the Council of Australian Governments in 1992. There is now broad recognition that our lifestyle depends critically on a range of natural assets: air, soils, water, mineral resources, forests, coasts and other biological systems as well as the social and cultural environment.

This dependence was expressed concisely by the World Commission on Environment and Development in its warning that our future pattern of economic development needs a sound ecological base if we are even to maintain present living standards, let alone achieve the improvements many people desire. Establishing a pattern of sustainable development is our responsibility to all future generations of Australians, as well as our duty as global citizens. Achieving that goal will not be possible without adequate and accessible information. There is widespread and legitimate concern about some aspects of environmental quality, such as air pollution, degradation of waterways, loss of biological diversity and erosion of agricultural land.

Decision-makers need reliable data on these and other key indicators of the state of the environment. They also need to know how the environment is changing. Without adequate, accessible information, we may make two sorts of errors. We may inadvertently do irreparable damage to the natural systems on which we depend. It is also possible, though perhaps less likely in the current political climate, that we might forego opportunities for desirable developments because we lack detailed understanding of the potential impacts.

State of the environment reporting is a powerful tool for informing the public about their environment. It describes the effects of human activities on the condition of the environment, as well as the implications of this for human health and economic well-being. It also provides an opportunity to monitor actively, directly and accountably the performance of government policies against actual environmental outcomes.

In this way, it can in effect act as a report card on the condition of the environment and natural resource stocks. That allows discussions about future economic and social development, and consequent policy, to be based on accurate and commonly agreed perceptions of environmental conditions and trends. If these conditions and trends are identified as they develop, decision makers in industry and government can avoid policies that might be environmentally unsustainable. Such policies could otherwise be socially and economically inequitable and costly. The first State of the Environment Report aimed to provide scientifically credible information on the state of the Australian environment, thus giving a reliable guide to all those who need information on the environment to assist them to make wise decisions.

The *National Strategy for Ecologically Sustainable Development* called for introduction of regular national state of the environment reporting to "enhance the quality, accessibility and relevance of data relating to ecologically sustainable development". State of the environment reports are now produced regularly by many industrialised countries; such reporting is an obligation for OECD member nations, including Australia. The basic purpose of the reporting framework is to allow for regular reports on an agreed set of national indicators that show changes and trends in environmental conditions, in much the same way as well-accepted economic indicators are used to report on the state of the economy.

The *1996 State of the Environment Report* identified some implications of current activities and resource uses for future environmental conditions, as well as the associated social and economic costs. The Report was broad in scope, covering terrestrial, atmospheric, marine, inland aquatic and urban environments. It was a major innovation to include cultural aspects of our environment, recognising that perceptions of the environment and its importance are largely culturally constructed.

2. Objectives and Guiding Principles

The broad objectives of the state of the environment reporting system are:

* regularly provide the Australian public, its governments and decision makers with accurate, timely and accessible information about the condition of, and prospects for, the Australian environment;

* increase public understanding of the Australian environment, its condition and prospects;
* facilitate the development of, and review and report on, an agreed set of national environmental indicators;
* provide an early warning of potential problems;
* report on the effectiveness of policies and programs designed to preserve environmental quality, including progress towards achieving environmental standards and targets;
* contribute to the assessment of Australia's progress towards achieving ecological sustainability, including the maintenance of biological diversity and ecosystems;
* create a mechanism for integrating environmental information with social and economic information, thus providing a basis for incorporating environmental considerations in the development of long-term, ecologically sustainable economic and social policies;
* identify gaps in Australia's knowledge of environmental conditions and trends, and recommend strategies for research and monitoring to fill these gaps;
* fulfil Australia's international environmental reporting obligations; and
* help decision-makers to reach informed judgments about broad environmental consequences of social, economic and environmental policies and plans.

We were urged to be rigorous, to base our Report on the best available scientific knowledge, to take information from a range of sources and be open to inputs from all interest groups.

To support these objectives, preparation of the State of Environment Report was guided by the principles of:

* *Rigour* - the Report used the best available scientific information, methods and advice, seeking to present accurate data and information in a balanced and accessible way.
* *Objectivity* - the data and information were presented without bias or modification [though the choices of which data to present necessarily reflect the values and perceptions of those preparing the Report].
* *Openness* - the system sought to ensure open access to information about Australia's environment.
* *Co-operation* - the process sought co-operation between different levels of government and different areas of responsibility within government.
* *Global vision* - wherever possible, the Report used information in a comparative manner, seeking to place local and regional information in national and international contexts; and
* *Ecological sustainability* - the Report sought to assess environmental information and issues against the principles of ecologically sustainable development, including potential impacts for future generations.

3. The Reporting Framework

In the past two decades the governments of a diverse range of countries, including Australia, Canada, Hungary, Italy, Japan, the Philippines, Turkey and the United States, have published reports on national environmental conditions. OECD members are now obliged to produce state of the environment reports, and most have done soln several countries, these reports are now integrated into national economic policy formulation. For instance, in the Netherlands the RIVM (Rijksinstituut voor Volksgezondheid en Milieuhygiene) produces comprehensive environmental outlook reports that assess current conditions and trends against criteria for ecological sustainability.

These public environmental audits are presented to the Dutch Parliament and used to monitor the Dutch National Environment Policy Plan, which aims to achieve ecological sustainability by the year 2010. The United Nations Environment Program is now engaged in the preparation of a report on the Global Environmental Outlook(GEO), aimed at putting state of the environment reporting on an international footing.

The *Australian State of Environment Report* was based on a modified form of the OECD's Pressure - State - Response model (***see Diagram 1 overleaf***), which describes our interaction with the natural environment in terms of the concept of causality: human activities exert pressures on the environment and change its state, or condition. Society responds to this changed state by developing and implementing policies, which aim to influence those human activities that exert pressure on the environment. Of course, lack of activity - a failure to respond - can also exert pressure on the environment, altering its state.

The OECD model implies simple relationships in the interaction between human activity and the environment. The real world is much more complex. Ecological relationships are rarely simple, and there are difficulties in determining the natural variability of ecological systems.

The local refinement of the OECD model includes some additional interactions. Responses are sometimes directed to changing the state rather than relieving pressures. For example, rather than restricting the vehicle use and economic activities which cause urban air pollution, we tend to look for ways to clean up the air-shed. The state of the environment can itself affect the pressures, as when depletion of a fishery reduces the level of fishing, or the littering of a beach by tourists reduces its appeal.

Finally, the responses we develop are significantly shaped by our perception of the pressures causing the problem. This local refinement of the OECD model has influenced state of environment reporting at the global level (Rump, 1996). ***See Diagram 2, overleaf.***

Diagram 1: The OECD PSR Model

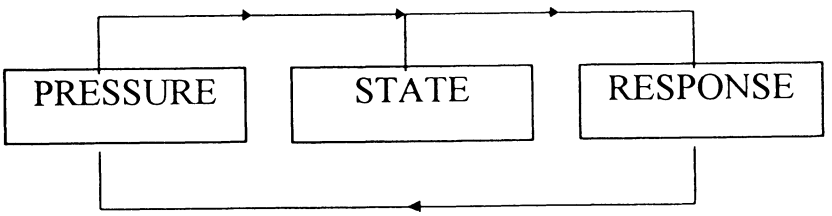
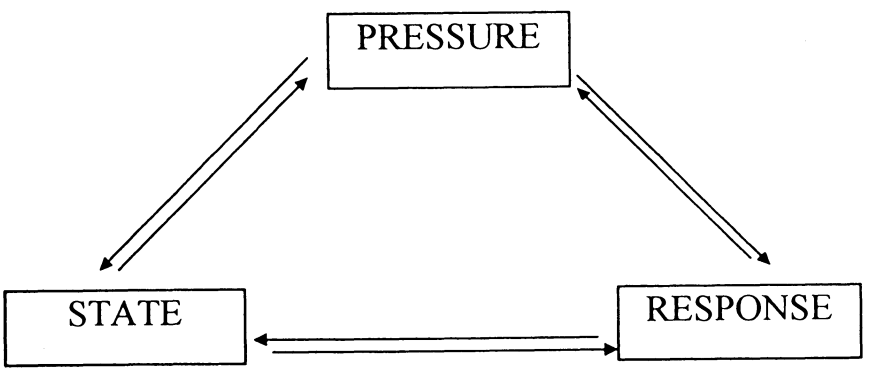


Diagram 2: Modified P-S-R Model



4. Environmental Indicators

Indicators are measures against which a place, event or circumstance can be assessed. They are usually developed for a specific purpose and they differ from other measures in providing meaning that extends beyond the attributes directly associated with them. Environmental indicators are physical, chemical, biological or socio-economic measures that can be used to assess natural resources and environmental quality. In a well-developed system of indicators, each matter of environmental concern will have spawned its own specific indicator or indicators. Access to widely accepted, simple indicators of environmental quality is essential for informed decision making.

We believe that to achieve a useful and practical model, one needs to look at all of the six possible pairwise interactions between pressure, state and response.

The OECD noted two particular functions for environmental indicators:

* they reduce the number of measures that would normally be required to give an 'exact' representation of a situation; and
* they simplify the communication process by which information about the results of measurement is provided to the user.

Indicators of environmental pressures describe pressures, positive and negative, on the environment. Such pressures can be caused by human inaction as well as action. Indicators of environmental conditions - the state of the environment - describe the quality of the

environment. Measurement of environmental conditions can be extremely difficult and expensive, and the OECD notes that in fact measurement of environmental pressures is often used as a substitute for measurement of environmental conditions.

Indicators of response show the extent to which society is responding to environmental changes and concerns. This includes individual and collective actions aimed at mitigating, adapting to or reversing negative impacts on the environment as well as repairing damage already done. It also includes actions to improve the conservation of the environment.

Responses to environmental problems are aimed at changing the situation. So a snapshot at any given time is an attempt to measure a situation which we are deliberately trying to change.

Monitoring environmental indicators over time can provide an effective early warning system. The use of environmental indicators in monitoring programs to report on the condition of the environment can therefore serve a range of objectives, including identifying where present social behaviour and economic policies might lead to future environmental degradation and associated economic and social costs. Development of a nationally agreed set of environmental indicators for Australia is a high priority for state of the environment reporting. It is, however, a complex task that will take a number of years to complete.

Evaluation of environmental change depends on there being a baseline against which such evaluation can take place. In general, baselines are chosen by scientists and managers because of their capacity to indicate significant change in a selected attribute. In that sense, baselines are part of the set of environmental indicators. Baselines can reflect change over time or they can reflect the difference between spatial areas at a particular time. Not only the natural variability of Australian conditions, but also the limited availability of data from scientifically rigorous monitoring of environmental change, hamper such evaluation.

Much of the significant environmental change to Australia - such as clearing of native vegetation, erosion of topsoil, and pollution of waterways with heavy metals - occurred during the nineteenth century and earlier this century.

The environment continues to change today in response to pressures from human activities, but, to accurately represent the importance of current trends and conditions, state of the environment reporting must place impacts in their historical context whenever possible.

State of the environment reporting aims to use credible baseline information that reflects the full extent of impacts of human uses over time, of the environment. It should be recognised that long-term monitoring will be required to establish reliable baseline information because it may take a number of years to identify trends in the condition of the environment.

5. Integrity of the Reporting Process

An honest and frank report MUST question some traditional practices and therefore threaten vested interests.

The key to the integrity of the process for producing the *State of Environment Report* was the independence of the State of the Environment Advisory Council and the use of the best available expert advice. The Advisory Council represented a broad range of expert and community interests. Its membership was primarily drawn from outside government, with members from the conservation movement, industry, the scientific community (including CSIRO), academia, and Aboriginal and Torres Strait Islander communities. Members were appointed by the Minister of the day.

The role of the Advisory Council was:

* to provide national policy and planning advice to the State of the Environment Reporting Unit;
* to assist in the identification of environmental information needs;
* to evaluate national state of the environment reporting;
* to review drafts of state of the environment publications to ensure their objectivity and credibility; and
* to assist in enhancing public awareness of the findings of reports.

Expert reference groups provided the mechanism for identifying important issues and the kinds of information needed to report on them. Each of Chapters 3-9 of the *State of Environment Report* was prepared and refined by an expert reference group, chosen in each case to bring together a comprehensive knowledge base in those specific areas.

Reference group members were drawn from the academic and research community, as well as government and non-government scientific, technical and professional groups. The Report simply could not have been produced without their professional contribution, in many cases going well beyond the call of duty. Every Reference Group included a member from the State of Environment Unit of DEST, acting as the point of contact between the Reference Group, the Advisory Council, the Department and the ANZECC Taskforce, as well as facilitating the operation of the Reference Group. As part of the process of developing the Report, each of Chapters 3-9 was reviewed by a panel of expert referees. The aim of this process of review was to ensure the scientific accuracy and independence of the Report. The final Report was improved considerably by the valuable work of these expert referees.

These features of the State of Environment reporting process ensured its integrity: expert reference groups, peer review of draft chapters, and the overseeing of the whole process by an independent Advisory Council. The Council was charged by the responsible minister in 1994 to report on "the good, the bad and the ugly", giving all aspects of the environment fairly and fearlessly. That degree of commitment to complete and independent reporting is, in my view, essential to the development of an integrated national system. As the recent UNEP summary put it, an independent reporting body "provides the opportunity to adopt fresh, innovative approaches which may be more successful at meeting the public demand for balanced and independent information" as well as being "less susceptible to influence by vested interests". The same Report warned

that such a body might experience difficulty in gaining access to data and information from government departments unless such access is guaranteed by law (Rump, 1996).

6. Other Problems In Developing an Integrated Reporting System

The *State of Environment Report* reviewed the state of information relating to Australian environments. The Australian Science and Technology Council (1990) found that Australia lacks:

* an integrated national system for measurement of environmental quality;
* a national data set of sufficient calibre to assess and manage environmental quality;
* appropriate national baseline data to evaluate the effectiveness of strategies.

There is an inevitable tendency for a report on the state of the environment to focus on the bad news - the issues that require attention, rather than the good news - the areas in which we are doing well

These deficiencies are clearly obstacles to the development of an integrated system, which needs above all else consistency and compatibility of data. Discussions aimed at overcoming the structural problems have been conducted through the Taskforce on SER Reporting, which was established by the *ANZECC Standing Committee* in March 1993 to establish this Taskforce on State of the Environment Reporting. It facilitates co-operation between the governments of the Commonwealth, States and Territories in developing their respective environmental reporting activities. The Taskforce was formally involved in two workshops which were used to develop the State of Environment Report; some Taskforce members were also personally involved as members of Reference Groups.

Reports must be clear and accessible, but still honestly reflect complexities and uncertainties

There are other structural problems. The collection of data needed to assess some important aspects of environmental quality is the responsibility of various areas of government: departments with responsibility for forestry, mining, transport, fisheries and agriculture are obvious examples. In some cases, those departments are reluctant to make available data that would allow independent assessment of their environmental management.

"The overall message ... is that we have a responsibility, both to the international and future generations of Australians, to protect our rich biological diversity and our outstanding natural environment. And if we are to discharge that responsibility, as the Minister said, we need a systematic and integrated approach."

These problems are related to a much more fundamental problem identified by the State of Environment Report. Although the "National Strategy for Ecologically Sustainable Development" has been adopted by the Commonwealth and all States and Territories, many government agencies still appear to see their primary role as the promotion of economic development, with little regard to environmental costs. There is little evidence that the National Strategy is reflected in the integration of a commitment to sustainability into all decision-making processes. Progress toward ESD requires recognition of the fundamental truth that the economy is a sub-set of human society, which is in turn part of the environment.

7. Conclusion

Let me summarise. I believe State of the Environment Reporting is a vital tool in our goal of moving towards a pattern of development that would at least, in principle, be sustainable. I believe there is a need for a national approach because the environmental problems we face take no account of lines drawn arbitrarily on the map by colonial bureaucrats in the nineteenth century. And the approach that we are gradually moving towards with bodies like the Murray-Darling River Basin Commission and other such instrumentalities recognises that they are environmental problems that span traditional boundaries and demand an integrated approach.The future, I believe requires an integration of national state of the environment reporting with State and local reporting, recognising that the size and diversity of Australia makes it absolutely impossible to make blanket statements about the state of our rivers or the state of our forests, or the state of our agricultural lands.

What is true of Southern Tasmania is not necessarily true of Northern Queensland or south-western Western Australia. I believe we need to keep continually under review, both the process for state of environmental reporting, and the products that it yields and how they are used by the community.

The urgent task is the development of indicators so that we don't have just these big bang reports at four year intervals, but continuous monitoring of the state of the environment. And I would hope in my lifetime to see state of the environment indicators given at least the prominence of such obscure trivia as the trade weighted index and the monthly balance of payment figures...I believe there is a need to link assessment of proposals for major new developments to our understanding of the state of the environment. And above all else, we need to ensure that there is routine consideration of environmental consequences in all social and economic planning.

Nearly 30 years ago, at the time of the Apollo 13, the world watched with bated breath to see if the limited resources and waste management systems of Apollo 13 could be manipulated to allow three humans to return safely from space. Anthony Tucker wrote an article for the Manchester Guardian entitled "Spaceship Earth", in which he suggested that we ought to be at least as worried about whether the limited resources and waste management systems of the spaceship which we now share with 5.6 billion other humans and about 10 million other species, can be managed sustainably. And if we are aware of that problem we ought to worry about the fact that there appears to be no flight plan, no strategic management approach, no one running spaceship earth.

I found this note on the Internet recently:

"We are not passengers on spaceship earth, we are the crew. And it is about time we took our responsibility seriously".

And in terms of taking our responsibility seriously, on the crew of the spaceship there are a variety of tasks which need to be done. Some need to be done by scientists, some need to be done by politicians, some need to be done by environmental lawyers, but we all, I believe, need to be committed to that goal of ensuring that the journey is a sustainable one.

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Session 1

Panel Member Comments

Panel Member: DI Dibley

Congratulations to everyone involved in developing the Report. It is a remarkably beautiful looking document - quite extraordinarily impacting in colour and design. But let us not get caught up with appearance. While the design might be wonderful and the concept is indeed a very important one (and it is an important moment in our history to have produced such a report), we must proceed with some caution in terms of our expectations of the Report in the future.

Taking up on Ian's analogy with the space crew, we live in times when there is a recognition that perhaps we are a crew and that we have to give the appearance of this knowledge. But often we give no more than that. We may produce a report, but how comprehensive is it? How well-based is the material? How well-organised is it and how accurate are the pieces of data that go to make up the report? Indeed, if the crew on the spaceship merely gave the appearance of having control of the delicate balance on board, the spaceship would tumble just as badly as if they had no knowledge of what was required at all - and they would be certainly more culpable along the way.

There are a number of things happening in the environmental area which are inspiring on one level, but which must equally be regarded with some caution. To exemplify my concern that we shouldn't become complacent, I refer to the new international standards, in particular the ISO14000 standards. At first sight it is fantastic to have a set of environmental standards that are internationally driven. But we must remind ourselves that these standards do not indicate environmental performance excellence. We cannot afford to become euphoric or too comfortable about the fact that we have environmental standards. We must be perhaps even more vigilant than ever to see that these standards are implemented.

With respect to vigilance on the Report I concur with Minister Hill that the task of finding solutions and applying them must be systematic. For instance, I would like to see a more systematic approach to the collection of data. For this reason, the Australian Conservation Foundation (ACF) and a number of people who have been involved in developing the State of Environment Report, are firmly of the view that there must be a legislative underpinning for this reporting. We must have consistency in the way in which the data is collected and the way it is then organised. We must also have certainty that we are getting all of the relevant information.

The Report is very severely undermined if we don't have access to the relevant information. For this reason we need a legislative underpinning. It must be nationally driven. We must also get information from the States. We can't have material locked away behind closed doors.

This Report is definitely the first step, and an exciting one. But if there is going to be true integrity in state of environment reporting, we must continue to argue for a

legislative underpinning.

I'd like to reinforce what the Minister and Ian Lowe have both said. We must embrace *environmental economics* in its entirety if we are to achieve ecologically sustainable development and the balance between economic and ecological development. We are reliant on that balance being found in every instance, relating to every project and every human activity that impacts environmentally, and there are probably no projects that in fact don't have an impact.

For this reason, we have to link the SER with environmental accounting. While it may be in its infancy in this country, environmental accounting certainly is not in its infancy in other places in the world. We have to impress decision makers and the community, that the environmental impacts embodied in this Report have true economic consequences. I would like to see the cost, the real cost, of the state of the environment become an integral part of the Report. The Australian Bureau of Statistics is beginning this work on environmental accounting.

We need to understand how the impact on our national environmental capital is being taken into our overall economic equation. Our environmental capital is an integral part of our economic well-being and should truly be an integral part of our national accounting system.

We are very well aware that there are a number of impacts on the environment which are causing degradation. Where that degradation cannot be commodified, we cannot pull it into the accounting system. We live in an age where the accounting system is paramount. We have to see other valuation systems given equal status so that we truly understand the full significance of the impacts (quantifiable and non-quantifiable). These impacts will be, we hope, increasingly comprehensively documented in the future state of the environment reports.

The relationship with Environmental Impact Assessment (EIA), of course, is absolutely vital. If we are going to have meaningful EIA, we must understand how developments impact truly on the environment. We have to understand the economic cost of impacts in terms of our national environment capital. While it may not be easily quantified, economic cost must be taken into account.

Pan l M mber: Nell McKenzie

I would like to make some comments on the Information Base that has been alluded to, particularly about what is a very ambitious monitoring program. It is important to realise that we are starting to pick up European and North American ideas and experiences in development of Australian indicators. Australia, however, has an extraordinarily poor knowledge of its land resources in particular. I speak mainly of land resources, because that is my area of expertise.

Compared to countries such as the U.S.A, large parts of Europe and many of our neighbours in South East Asia, we have a really dismal knowledge of particularly the soil resources. The situation for vegetation is a bit better, but not much. It is essential to have a good survey framework before you can even start to talk about monitoring. Monitoring programs that operate independent of knowledge of the baseline and the spatial distribution of our land resources will produce inconclusive results and will waste a lot of time and ultimately generate an enormous disillusionment with the gathering of technical information. It is very important, when talking about monitoring programs, that we think in terms of the basis being a land resource survey from which to set our monitoring sights.

Monitoring is a very appealing concept - something that people relate to relatively easily. It is an obvious thing to do, we do it with economical data all the time. But one of the great differences with economic data is that we have a market that tends to generate data fairly readily. In some areas such as Land Resources and Geology, the actual measurement and survey task is a major undertaking and it is technically quite demanding. Recent work commissioned within the CSIRO has demonstrated that investment in a land resource survey in particular, is of enormous public benefit. It is a relatively small cost for the returns in terms of much better environmental management, land planning and so on.

There is an enormous range of attributes of the land that we are interested in. Some things are very easy to monitor. For instance, the acidification of our agricultural lands involves a relatively simple test and you can go back and do it every 5, 10 years, 20 years, and have a good idea of trends (as has occurred in the last 20 or so years). Salinity is also relatively easy to monitor. However, some of the land qualities that are argued to be the country's most significant, for example, soil structure or soil fertility, these attributes of the land are actually technically quite complex to measure, and are variable in space and time. Comprehensive monitoring programs raise an enormous span of technical difficulty affecting our ability to monitor.

I question too, whether monitoring is what we need for some attributes. For example, for soil erosion, which is regularly shown to be really critical, is there any point in monitoring this diligently all around the country for 20 or 30 years, to come to the conclusion in 2040 that we have a major national problem? We know from first principles that if you lose the surface organic matter, if you lose your nutrients, you've got a problem.

We really need to develop, in conjunction with a monitoring program, a good predictive program as well. We don't need to wait until the horse has bolted to act on many of these problems. It is very easy to feel better if you have some monitoring activity. But this "feel good" can be a good way of stopping us really thinking about the significance of the problem and taking preventative action.

Australia also has a major institutional problem at the moment, in that there are many repositories of good environmental data, but no clear points for accessing data collected. You can move from, at the one end, Landcare groups, right through to the various State and Territory agencies, through, now, to the banks, insurance industries, and all the research and development corporations. There are many, many groups, including local governments, who will benefit greatly from access to much better environmental data. At present those sources of data are dispersed. Nor does anyone really take the responsibility for funding programs, particularly for land resource data acquisition.

We need an institutional framework where we can have beneficiaries contributing to programs of data acquisition.

We have had a long history of data collection in this country. If you add up the cost, particularly of the number of surveys of land degradation, or of individual problems over the last 20-30 years, and look at the expenditure, it is quite enormous. The real challenge is to organise ourselves much better, to have much better targeted groups responsible for the acquisition of data and for the co-ordination of it so that in the long term we have something useful.

The *Land and Water Resources Audit,* which has extremely noble intentions, is an example of another very large government initiative that runs the risk of running for 3-4 years and at the end all we have done is to generate a lot of short term responses. We will not have really established the longer term actions we need to have a technically defensible monitoring program.

It is worth keeping in mind that investment in environmental data is extraordinarily beneficial. In some of the preliminary projects we have looked at, which provide very conservative estimates of benefit cost ratios, we get benefit cost ratios of between say 40 to 1 and upwards. There is often a view that gathering data can be terribly expensive. If it is well focused, it need not be so.

Pan l M mber: Stephen Clay

A lot of what the two previous speakers have said also applies to local government. Having read parts of the Executive Summary of the Report that affect local government, I decided to canvass opinions from my peers in the region. I found a mixed response. Some people had read it and were quite positive about the global nature of the Report. Others were really quite hard pressed to remember, and queried what Report I was talking about; until I said "it's the one with the pretty floral cover", and they said, "yes, I remember that one!"

I don't want to trivialise what this Report is - it is an important document; and the visual impact of the Report is an important part of getting the message across. Like the previous speakers, an important message I picked up from the Report was that, sadly, it boils down to a lack of funding for and a lack of information about Australia's environment. Knowing that in itself is positive, provided we can act on that message.

What is the Report's relevance to local government? As a day to day tool, the Report is not particularly relevant. Most environmental people in local government have got a fairly good grasp of the big picture issues; however, the Report is very useful for local government generally. It is an excellent national report card in itself. It is quite a clever document with some really good visual aids. The Report conveys quite complex messages through simple diagrams, for example land cover change by vegetation type between the first white settlement up to 1988.

There is however, only very minimal coverage relating to waste management, which is a particularly major issue for local government and has implications for everybody. Initiatives to help manage waste resulting from, say packaging, can only really come from the Federal government. The States and local government tend not to be able to muster the co-ordinated political clout to bring about any real change.

Other issues worth noting relate to co-ordination between spheres of government. The Report highlights a variation in scope between State of Environment Reports produced by different spheres of government, and indeed the Report says (and I quote) that "Australia lacks the integrated national systems and databases to measure environmental quality, manage it and evaluate the effectiveness of that management". It is our lack of knowledge and understanding of environmental issues that emerges again and again in the Report as a major obstacle to sound environmental management. It is this lack of data and interpretation that is a major concern for local government.

There are some messages in the National State of Environment Report which are the same as for local Reports - no money, no information. Choice of indicators to measure aspects of the environment must be consistent and integrated between spheres of government, and the Minister and Professor Lowe have both flagged this in their addresses.

I recently saw a copy of a document produced by the Hawkesbury and Nepean Catchment Management Trust, called "The Interim Information Management Protocols for State of Environment Reporting". A large number of Councils and environmental groups got together in the Sydney area to produce what is, in effect, a kind of proforma for state of environment reporting. If it is done properly, a document like that can help standardise the information that we report on and need to collect. My overall message is to ensure that we have consistency and integration.

Discussion

Summary of Key Issues Raised In Discussion

Waste Management

(Prof Lowe) Problems such as waste management are not problems of any one level of government; they require responses from all levels of government, from corporations and from individuals. State initiatives like the beverage container deposit legislation in South Australia (which is simply returning to the practice of the 1950's of giving people a financial incentive not to throw beverage containers away) have been dramatically successful, but the packaging industry has successfully resisted extension of this initiative to other States.

A variety of initiatives at the Local Government level have also been successful in reducing the problem for local management of the waste stream. Whether it is Brisbane City Council with its large wheelie bins for papers, bottles and metals, or the Cambridge Council in suburban Perth with its separate bins for papers, plastics and glass: my understanding of both these examples is that they are cost neutral. In other words the markets they found for selling the recyclables are paying for the extra cost of collecting.

What needs to be addressed at the national level, is the source of the problem which is the obscene level of packaging which generates an avalanche of waste which

we then have to try to recycle and deal with. There is a need for all levels of Government to play their part. We need an integrated approach. If there is one problem which hamstrings environmental management as with many other areas of decision-making, it is the battle between different jurisdictions and between different areas of responsibility within levels of government. If you look at environmental impact in Queensland as an example, there are about six different departments that are "responsible", to use the word charitably and loosely, for managing the environmental impact of different sorts of activities. There is absolutely no sense of an integrated approach even at the State level.

Access to th State of the Environment Report

(Prof Lowe) The Executive Summary went on the worldwide web within half an hour of it being launched in this building by the Minister in June 1996.

Environm ntal Indicators as Triggers for Precautionary Action

(Prof Lowe) Monitoring of indicators should expose trends and therefore trigger action to address emergent problems. A direct example is in Brisbane, where we know that air quality currently meets National Health and Medical Research Council (NHMRC) guidelines. We also know that if the Department of Main Roads continues to have its way in encouraging more people to drive one-occupant vehicles longer and longer distances around the Brisbane metropolitan area, extrapolations of current trends show that the NHMRC guidelines will be regularly breached early next century. That is an indicator for decision-makers if they have the wit to use it.

It is simply not appropriate to extrapolate current transport policy without extrapolating current health problems. And similarly, if monitoring of water quality in a river shows a steady trend of water quality degradation, that too should be an indicator to trigger action. To avoid some benchmark being exceeded, it is necessary to take action. Ideally indicators should be sufficiently specific to give early warning of approaching problems.

The obvious difficulty is that one could envisage hundreds or even thousands of indicators being needed to ensure that the water quality in Lake Burley Griffin and the air quality in Darwin and the level of biological diversity in the Pilbara are all at acceptable levels.

There have to be hierarchies of indicators, some that are national, some that are at the State or regional level and some that are very specific at the local level with different uses for the different indicators.

Indicators and Environmental Accounting

(Ms Dibley) In developing indicators we need to ensure we are able to quantify environmental impacts. In the case of air quality, if you look at the cost to the health system and then you look at the cost of addressing the air pollution problems up front, the good economic sense of getting it right now is easy to see. I strongly advocate that environmental accounting becomes an integral part of developing indicators that are meaningful and upon which people are likely to act, and Governments are likely to act.

Variable Indicators and Benchmarks

(Prof Lowe) It is also important that these indicators are reviewed very regularly. Community expectations can change over time. It is not necessarily appropriate to have a set indicator, an amount, a figure, that applies all the time. As an example, we change our view and develop further knowledge on the effects that different pollutants have on the environment and on people. It may be that smaller and smaller doses of certain substances may have to be engendered. Fixed views on intake levels based on old knowledge may be inappropriate. We may need to strive for a lot less than that all the time.

The Economic Value of a Good Environment

(Prof Lowe) Tourism is now our third largest and most rapidly growing industry, with a turnover approaching that of mining and agriculture put together. If you think about what international visitors come to see, it is not our political institutions or our old buildings - overwhelmingly it is our natural assets. I was given a very specific figure a couple of weeks ago related to the tropical forests of Queensland. In the last year in which logging was permitted it generated revenues in the order of $27 million.

That is quite considerable and the industry employs hundreds of people, and as a result there was a big fuss when the Government of the day decided that logging of tropical forests would no longer be permitted. Last year the revenue produced by tourists visiting tropical forests was estimated at $377 million. We have to put the values of the environment in terms that even economists will understand, so they are aware that there is a bottom-line economic price, as well as an ecological price, to pay for not protecting our natural assets.

Sensitising Indicators to Natural Environmental Variations

(Neil McKenzie) In the suburb of Watson in North Canberra, it has just been discovered that there are natural levels of lead that are way beyond the clean-up levels of 300 parts per million. That benchmark is an international cut-off standard that everyone follows. One of the unfortunate things is that it gives no indication of the bio-availability of lead. You may have that total amount in the soil but what it means in terms of human health is an extraordinarily complex issue. The 300 parts per million is in fact an extremely conservative benchmark. That has enormous impacts for the landholders of Watson and for people who own houses who are trying to get out of there. We have to be very, very careful using indicators which we think are relatively straightforward.

If we move to the health of catchments or of rural environments or of a forest we need to consider more locality specific issues. The case of forests is an interesting one. At the moment, the Montreal Protocols on Forestry are trying to establish indicators of sustainable forest management, so that the whole trade in world timber can be regulated according to whether timber comes from a sustainably managed system.

Now, when you look at the soil and water conservation side of forests, it becomes extraordinarily difficult - just the technical issues of whether you can even measure the properties that people are talking about. To give you some feel from the agricultural setting, you cannot just

take a single measure out of the system. If we are aiming for a good agricultural system, one of the best measures of whether an agricultural system in Australia is healthy, is whether it can absorb all the rainfall and have all the rainfall go maximally towards production. To measure this, you have to have a knowledge of soil permeability, about the timing of rainfall, the way your crops are managed and, more importantly, climatic conditions, if you really want to know how permeable your soil is. In Northern Tasmania, for example, soils can accept the 1:100 year storm. That is an indicator, but in Central NSW or the Northern Tablelands, with a climatic regime that is very, very different, the same indicator would, in the same setting, be completely inappropriate.

When we move into a regulatory regime mentality, we have to be very careful. We are talking about natural systems that are highly dynamic. We can have a good understanding of whether a system is crashing or whether it is healthy but to actually specify figures that have no probabilistic component or do not have a link to the broader system of how our land and water systems work, we will run into endless litigation problems. This may be fine for environmental lawyers, but scientifically there are a lot of really difficult issues. You always have to have this probabilistic component to any interpretation.

Two sides to the Legislative Framework underpinning SER

(Prof Val Brown) There are two sides of legislation that need to be looked at. One is the question which Dr McKenzie raised about setting some sort of fixed indicators through legislation of standards. The other issue is that of legislation to cover the preparation of state of environment reports themselves.

Australia has a very mixed bag of state of environment reports. At the Federal level there seems to be a question about continuity and maintaining the process. At State Government levels, Victoria is not doing it at all. New South Wales is in the forefront of Australian States in actually requiring Councils to regularly report on the state of their environment. There has been some recent criticism about it perhaps being too routine and not built into local decision-making enough, so there are some issues about how you legislate for state of environment reporting. There seems to be a connection with the issue of not making monitoring and setting indicators too academic; and actually having regular state of environment reporting built into the structures of government.

(Prof Lowe) Certainly, it was the view of the Advisory Council that there should be a statutory responsibility to produce major state of the environment reports at regular intervals, perhaps every four or five years. It is also right to say that indicators are meaningless if there is not enforcement. If there are air quality indicators that are a serious risk to human health or the natural environment then there has to be statutory enforcement. You may not enforce particular technologies but you should enforce particular standards.

Indicators, EIA and ESD

(Speaker from the audience) A question which is more and more being asked with EIA, is "can you show that this proposal meets with the principles of ESD?". In answering that question, at one level you have the principles of ESD and at another level you have the proposal itself. It can be relatively straightforward to develop management objectives and performance indicators for management of that proposal in terms of environmental impacts.

It is often difficult to make a one-to-one link between indicators, and the criteria and the principles of ecologically sustainable development. In my experience there seem to be two schools of thought. One school says you cannot really make that one-to-one link; and it is more a general judgement as to whether or not you are achieving the principles of ESD. The other school of thought says that the link must be there, but it may not have been found yet.

(Professor Lowe) There is a variety of definitions of ecological sustainability. To say that a particular proposal is consistent with ESD, you have to be able to show that it is not significantly reducing opportunities for future generations. But that will always be a judgement, because any proposal will result in changes, some of which are positive, some of which are negative. Weighing up whether, on balance, there is a benefit or a detriment to future generations, is a matter of judgement.

What you have to do at a minimum is draw up that balance sheet, say what the changes are which you believe are positive for future generations, say what the changes are which you believe are negative, and make that value judgement explicit and public.

Historically, there has not been that clear delineation of costs and benefits. There have tended to be general assertions that no irreparable damage will be done, without a serious attempt to quantify all of the changes and draw up that overall balance sheet.

State of Environment Reporting in the Canberra Region

Dr Joe Baker
ACT Commissioner
for the Environment

The inaugural *State of Environment Report* for the ACT was launched in 1994. This was the first report by a body established under legislation, and I would like to stress that that Report was prepared, as was the second Report, in accordance with the requirements of section 19 of the *ACT Commissioner for the Environment Act* 1993. At the moment such reports are required annually, but we have recommended to the ACT Government that the reports should be presented every three years for a total report.

If I had my way, there would not need to be a full State of Environment Report even every five years once the initial SERs have been established and their credentials recognised. The environment is not changing so rapidly that a lot of meaning can be derived from annual reports. What we have proposed with respect to ACT state of environment reporting is that we will have a large report every three years so there is one report in the life of every Government. It remains a political issue to make sure that in every term of office there will be a State of Environment Report.

The way we are heading in the ACT is to ensure that information about the environment is being compiled and recorded regularly, in regular periods, so that any member of the community, any member of Government, any developer, can access and use that information as a planning tool. We see state of environment reports as an essential basis for long-term sustainable planning and management.

It is important to recognise the scope of our State of Environment Report at present. Section 19 spells out the specific requirements of the Act (see Table overleaf). We have recommended to the Government that those requirements be condensed and made more clear, but the total objective would still be very comparable.

I stress that our Reports have been prepared completely independent of any pressure or any direction from the Minister of the day, whether it was Bill Wood initially or Minister Gary Humphries at present, except in clause 19(e) where the SER has to include such matters as may be specified by instrument by the Minister (see Table overleaf).

It is very important in my view, that the state of environment report be an independent report. One of the values we have, being established under legislation, is that we can access the information held by all the ACT Government Departments. So some of the constraints that exist for the National State of Environment Report and for some of the State Reports do not apply in the ACT.

Another really significant way in which we have benefited in the ACT is by the involvement and contribution of the community groups who we have consulted in the preparation of the Reports, as well as the members of Government Departments and agencies, and specifically the Chairpersons and the members of the expert reference groups that we created. These people act in a totally voluntary manner.

I don't know how you like to use statistics, but the ACT is approximately one 300th of the size of NSW and approximately one 3,000th of the size of Australia. Fifty expert, committed people are assisting us in the SER Reference Group. If you were looking for the same type of resource on a national level, it could be argued that you are looking at something like 150,000 people Australia-wide to prepare a Report that has the same level of intellect which we have been able to put together in the ACT. You cannot necessarily use figures in that way, but a speaker sometimes has advantage over the audience, and I wish to draw to your attention the very specific advantages that are in the ACT.

We have a small Territory; approximately 54% of which is in protected reserves. We have the opportunity in a planned area (and the ACT is, as I understand it, the only State or Territory with such supportive legislation) to really set a standard which should be followed by others.

Format of the ACT State of Environment Reporting

The Resources initially identified were Atmosphere, Water, Land, Biology and the Built Environment. Over time, those resources have been refined to: -

* Atmosphere
* Water
* Land
* Plants and Animals
* Urban Environment

These form the Chapter topics in the ACTSER 1994.

A range of **issues** associated with each resource was identified - eg Water **quality** and **quantity**; and for each issue, a number of indicators were developed - eg Environmental **indicators** are physical, chemical, biological or socio-economic measures that can be used to assess natural resources and environmental quality.

Source: ACTSER 1994

Guiding Principles for Preparation of the ACT State of the Environment Report

(i) the requirements of the Section 19(2) of the ACT *Commissioner for the Environment Act* 1993 states:-

The Report shall-

(a) include an assessment of the quality of the environment, including reference to its impact on flora and fauna;

(b) evaluate the adequacy or appropriateness of existing practices and procedures that are directed towards achieving prescribed environmental standards;

(c) include an assessment of ambient air and water quality, noise, hazardous wastes, soil quality, site contamination and the impact of waste;

(d) include an assessment of the effectiveness of any pollution control, national standards and the feasibility of any goals and other environmental management practices that have been accepted by the Executive;

(e) include such matters as may be specified by instrument by the Minister, and

(f) include such other matters as may be considered relevant by the Commissioner.

Our two State of Environment Reports are still available and only cost $20 each, which is remarkable value when you consider the amount of information in them and the way that information has been put together.

The sort of standard I look for is that all State of Environment Reports are compiled with maximum input from the community. The more aware the community, the better the SER is going to be and the more it is going to be used by the community as well.

When preparing the SERs, we took into account six fundamental things. The first of course, were the requirements of the *Commissioner for the Environment Act*, 1993. The second, was the *Inter-Governmental Agreement on the Environment*, which was signed by all Australian Governments in May 1992. The Agreement recognises that environmental concerns and impacts respect neither physical nor political boundaries, and are increasingly taking on inter-jurisdictional, international and global significance, in a way that was not contemplated by those who framed the Australian Constitution.

From the very outset in preparing our first Report, we clearly identified the need to consider the impact of activities of the ACT on NSW, particularly those local governments directly contiguous with our borders, but also the impact of those local governments and their activities on the ACT. That early recognition has, I believe, facilitated the subsequent and very close interaction of the ACT and its sub-region and the South-East Region in general with the objective of developing a Regional State of Environment Report.

The third factor we took into account were the initiatives through ANZECC which have led to the National State of Environment Report. The fourth was that we used the OECD model, which introduced the concept of Pressure - State - Response. In our 1994 edition of the *State of Environment Report*, on page 147, we actually focused on the interaction between these three factors. We called it "condition" rather than "state", because we didn't want to have confusion with the State set-up in Australia. In our terms, "state" equals "condition" and the Report has a diagram which illustrates this.

Professor Val Brown and Dr Helen Sims, and many here who were part of the Working Groups or Reference Groups, were instrumental in our early recognition that these three factors are totally integrated. You must consider their interaction at all times and in fact the diagram we used on page 147 (Diagram 3 overleaf) is even more complicated than the one that Ian Lowe used.

Another factor taken into account was the community. Effort was made to reach every level of the community, not only in the ACT, but for the first Report, we also met with representatives of the Shires of Cooma, Monaro, Yarrowlumla, Yass, Gunning and the City of Queanbeyan. So we did consult regionally from the outset.

The final point that we took into account was defining the term "environment" My fundamental training as a chemist tells me that I need to work back to the most fundamental of things so I can try to develop greater understanding. Whereas others have not stressed "What is the Environment?" and the environment is not defined in our legislation, we thought it was important to develop a definition (see overleaf).

The environment is all that is about us - the air, the water, the soil, the vegetation, the animals, including humans, their interactions and their interdependence. It embodies the biological, the physical, the social, the economic and the cultural structure of our country, and its biotic and abiotic resources. The ACT's approach is consistent with the type of expressions that Ian Lowe was using. Nobody has asked me to change that definition so for the moment we are continuing with it.[7]

Defining the Environment

The environment is all that is about us - the air, the water, the soil, the vegetation, the animals (including humans), their interactions and their interdependence. It embodies the biological, the physical, the social, the economic and the cultural structure of our country and its biotic and abiotic resources.

Source: p147 ACTSER 1994

The environment has, as one of its minor points, economic considerations. Ultimately, until we are considering economic aspects within an ecological or environmental framework, it is unlikely that we will achieve true sustainability. Using these guidelines and other information from SERs in Australia and elsewhere, we developed a six sector format: atmosphere, water, land, plants, animals, and the urban environment. **(See Pt 1 Box previous page)**

Separate chapters were prepared for each sector, although plants and animals were grouped together. For each subject we had a specialist Reference Group which brought together people of different disciplines. As Commissioner, I was responsible for a synthesis or overview chapter to bring together the findings of the expert groups. The distinctive value of the State of Environment Report is that it brought together existing information, but in a totally new manner, and with the benefit of analysis across disciplinary groups, again in a way that hadn't been done before. We now have two State of Environment Reports behind us. The most distinctive feature of the ACT State of Environment Reports is that they contain recommendations to Government; and the Government, through the Minister, is obliged to respond to those recommendations. That makes the process kinetic, because the first Report was produced with recommendations. The second Report records the Government response to those initial recommendations and it also establishes new recommendations. So people reading these Reports in the future will be able to see what was recommended, the Government's response, how that Government has modified its practices on the basis

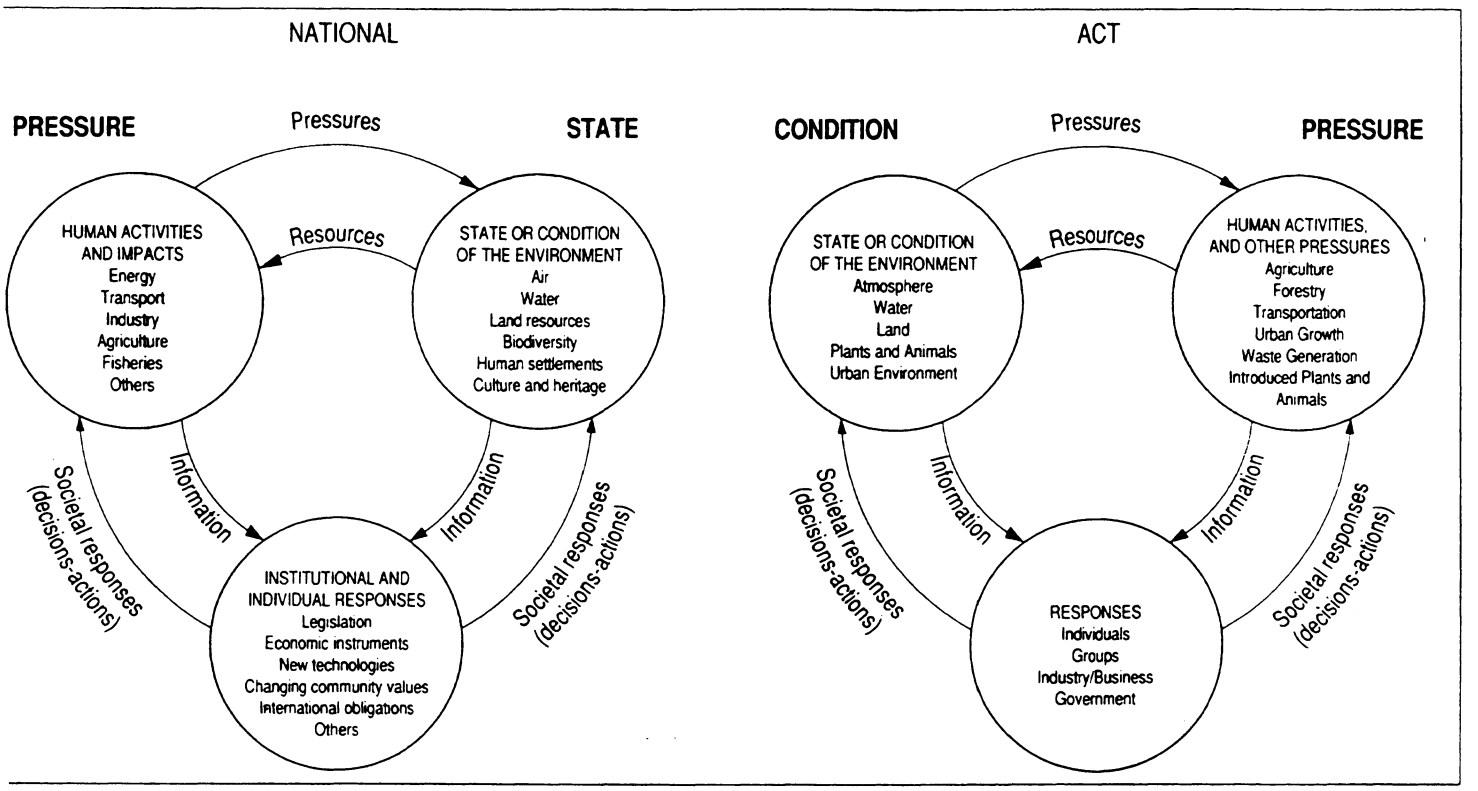
7 The ACT Government has since tabled the *ACT Commissioner for the Environment Amendment Bill*, introducing a definition of the environment consistent with that used in the *ACT's Environment Protection Bill*, also tabled in May 1997

Diagram 3

The National Pressure State Response Model

(showing the pressure, condition and response model)

Source: ACTSER 1994 p 147



of environmental reporting and what it is like to see an improvement in sustainable development.

The deliberations leading to the recommendations have resulted in information being collated and analysed by people independent of Government and across disciplinary groups.

The Reports identified not only the disadvantages or deteriorations of the environment, but also (particularly the second Report) specifically identified opportunities relating to the environment of the ACT. There are things in the ACT's environment that do attract certain types of sustainable activities. Additionally, the Reports have clearly identified the significance of reaching agreement on what should be measured to understand changes in the environment. Those aspects or indicators have not yet been finally agreed and, as with the Federal SER, they remain the principal subject of investigation for the near future.

One of our specific and principal recommendations to the ACT Government was that it urge the Federal Government to establish standards or core environmental indicators against which the Commonwealth, States, Territories and Local Governments can develop indicators to establish a consistent pattern for reporting.

I believe the recommendations are an essential component of ACT State of the Environment Reports given the way they are prepared. The groups of experts necessarily consider complex issues in detail. Even the National State of Environment Report implies recommendations but doesn't go as far as developing them. It makes good sense, while you've got experts together, to get them to develop the recommendations, put them to Government and let them be seen through the bureaucratic processes. This pulls together the two extremes - the external experts and the internal experts, to see what progress can actually be made towards sustainable development. I am surprised that more people haven't regarded the recommendations as being essential components of other State of Environment Reports.

The inclusion of recommendations highlighted the next steps arising from preparation of SERs, namely that they provide material in a format that can be easily moulded for management decisions.

Another fact has become clear. The ACT could never be considered environmentally in isolation. The boundaries are artificial as far as the ecological processes are concerned and therefore we were stimulated to propose that we look at a report within the Canberra Region (see Location map on page 28)[8]. The ACT Government

8 Source of Map : Dealing with Change: an Economic Strategy for the Australian Capital Region, Australian Capital Regional D velopment Council May 1997

and the surrounding Local Government Authorities have established together a Regional Leaders Forum. The different components of the Regional Leaders Forum, and the leaders of all participating Local Government Authorities (LGAs) and the ACT meet regularly.

On the basis of one of our submissions initially to our Chief Minister, Kate Carnell, we first of all proposed to her that for every Regional Leaders Forum meeting there should be an item on the environment. Chief Minister Carnell agreed, and it was very soon after that the Mayor of Queanbeyan suggested a move towards a Regional State of Environment Report. While it was not in fact our initiative, we favoured it very strongly.

The Regional Leaders Forum has asked the ACT Commissioner for the Environment to investigate the practicability, and cost, of producing a Regional State of Environment Report which would satisfy the reporting requirements of each of the individual LGAs in the Region; and synthesise and analyse data to produce a Regional Report, the aim of which is to satisfy the needs of all components.

The Regional State of Environment concept has been developed today to a stage where the Regional Leaders have contributed $40,000 to prepare a scoping study. This project is overseen by a steering committee representing groups of the different LGAs and the ACT to produce, by November 1996, a specific outline of what will be in the Regional State of Environment Report and how it will be presented.

At a meeting on 14 August 1995, the Regional Leaders agreed to this initial sum of money, We told them that what we were proposing would give a report in which it would show a sequence from the mapping of individual features such as soil types, water quality, road and fence locations and urban development, to measurements of individual features. It would provide for data accumulation, for information sets derived from those data, including maps, and it would then lead to knowledge on which LGAs and the Region as a whole, if they require, could make decisions.

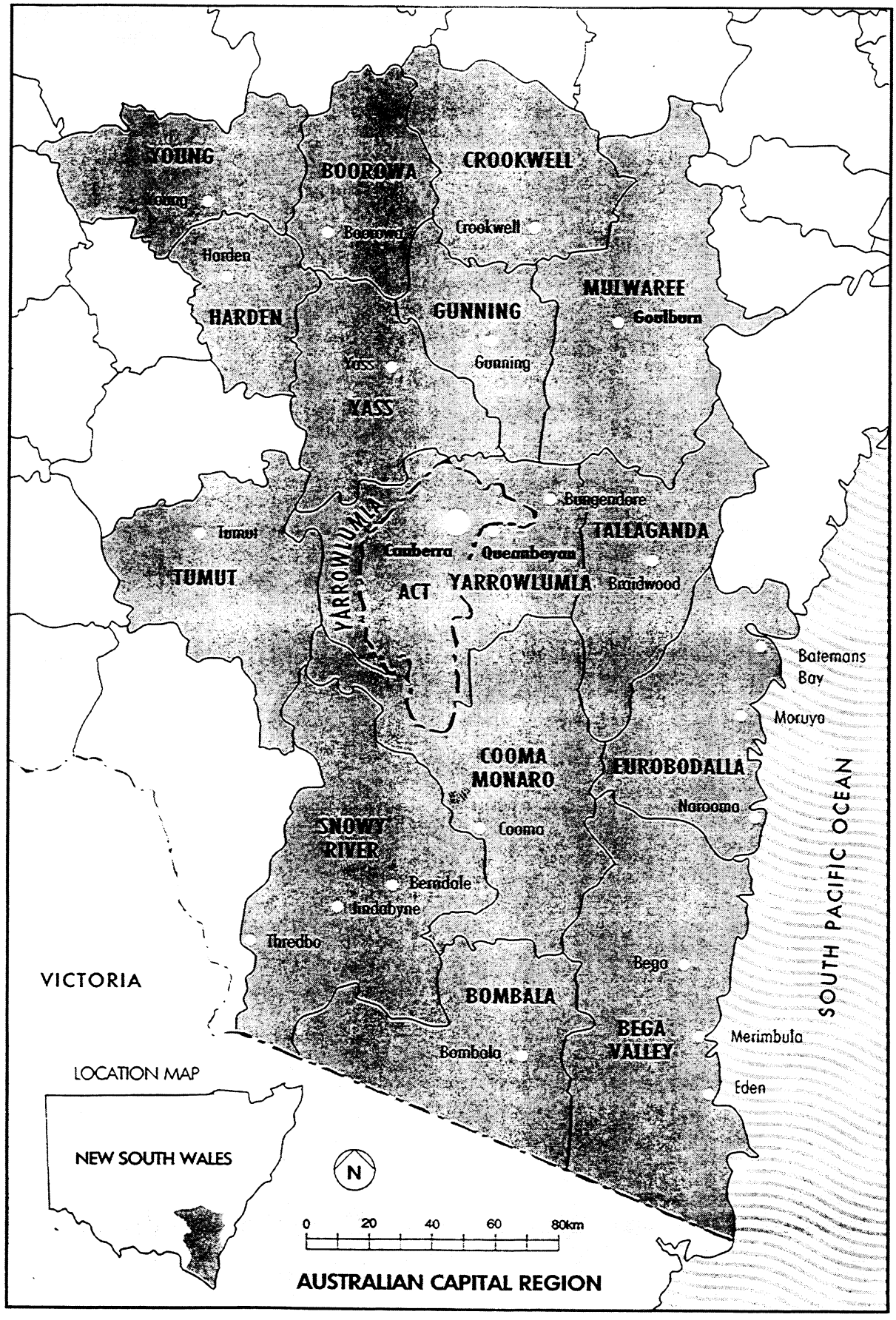
The concept was for sequential development, based on environmental knowledge, and now proposed to be presented in electronic form based on equipment which would be held in each of the contributing LGAs, and on Geographic Information Systems (GIS), whereby any LGA and any member of the communities in those LGAs would be able to access the data which is held in a central record and updated regularly.

Another dimension of the approach was that periodically we would analyse new data and interrogate it for a significant change in the environment. This now allows us to move towards a system where you have the data readily accessible to the community and to all potential users: in Phil Herrick's delightful paper which follows mine, you will see that some LGAs have already moved to implement the basis of that system. It will be electronically based and the type of report we will put out in the future will probably be no bigger than the presentation we made to the Regional Leaders, but it will build on successions of information which can be put together and interpreted for different types of use.

This, I believe, is starting to give us ecological and environmental data which will always be taken into account in every decision through the ACT and the Region of south-east NSW. We recognise there are many challenges to face - the principal challenge is certainly the development of reliable indicators that can be used by us at the Local and Regional level, through the State to the National and, hopefully, even to theInternational.

A great challenge (which one of the earlier speakers referred to) is that the data that exist to date are sometimes hidden from us and access to which is restricted by ridiculous cost. Any data held that have been accumulated through public funds in the past must be made accessible for the purpose of state of environment reporting if we are to move quickly to ecologically sustainable development.

We do need monitoring and that monitoring must be continuous. I believe what is proposed for the ACT Region will give us a very good example of how State of Environment Reports can be used as a basis for the development of management plans that will lead Australia to ecologically sustainable development.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Bungendore
Tumut
TALLAGANDA
Canberra
Queanbeyan
TUMUT
YARROWLUMLA
ACT
YARROWLUMLA
Braidwood
Batemans Bay
Moruya
COOMA MONARO
EUROBODALLA
Narooma
SNOWY RIVER
Cooma
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Jindabyne
Thredbo
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BEGA VALLEY
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LOCATION MAP
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AUSTRALIAN CAPITAL REGION

State of Environment Reporting Local Government

"A new way of seeing things. The State of Environment Report as a management tool"

Mr Phillip Herrick
Community Relations Manager
Shire of Eurobodalla

Late one night in early 1993 the NSW Parliament in Sydney was struggling through the amendments to a major piece of reform legislation - the new Act that would set in place a new operating environment for the 177 local councils in the State.

The Liberal Government had battled through its term and needed the support of the Independents to pass legislation. One of these, Clover Moore, who represented an inner Sydney seat, took a keen interest in the environment and had some ideas that she wanted incorporated in the new law - ideas that she believed would make councils more environmentally accountable.

Unknown to the State EPA, which had helped draft the environmental aspects of the Bill, Ms Moore introduced a new raft of reporting themes and gained the agreement of the Government. And paragraph 428 (2) (c) of the *NSW Local Government Act* 1993 was bought into the world. (See text of sub-sections 428(1) and (2))====>.

For most councils the section lay unnoticed as they took on board the new Act - a law that radically changed the way councils worked and the way they related to their communities. Accountability, transparency and participation in decision making became the order of the day.

Finally the wheel turned and it came time to meet the annual reporting provisions of the new Act. Across the State, local government staff turned to section 428 and stopped in their tracks trying to grapple with the ten themes that had been set for state of the environment reporting. For us at Eurobodalla Shire - we were out first ball.

Number one of the themes required us to report on "areas of environmental sensitivity". Living in one of the most untouched areas of NSW, with 110 km of beaches and thousands of square kilometres of forest we rather thought the whole of the shire was environmentally sensitive - so what were we to say? How could we ever write a report that comprehensive?

Why should we report back to the State government on the 80% of our Shire controlled by State government agencies as national park and state forest? And in many cases pay them for the information!

We did the right thing, produced a report and I'd say ten people may have read it. To be honest with you I thought the whole concept plain stupid. But I stand before you today as someone who has seen the light - a convert. Not that I've seen Clover Moore's light, but I think that the need to address the environment made us focus on the issue.

That came at a time when new technology became more affordable and accessible, and with a bit of lateral thinking we are now moving at Eurobodalla Shire to introduce a system of environmental monitoring and management that will deliver some of the results that the Clover Moores of the world wanted - even if they didn't quite know the best way to get them.

The key to understanding what I am about is to look at State of the Environment Reports in a new way. To see them as the pimple on the bum - not the entire rear end. The problem is that the NSW law makes the Report an end in itself - and for most part that has meant the destruction of hectares of forest for the production of 177 Council Reports that sit on shelves and gather dust.

A report is useful if you want to log change over time. Now that is a good thing, but unless you link your report to a mechanism that incorporates environmental management, your state of the environment report will be increasingly gloomy.

New South Wales Local Government Act 1993

Annual Reports

"428

1 Within 5 months after the end of each year, a council must prepare a report as to its achievements with respect to the objectives and performance targets set out in its management plan for that year.

2 A report must contain the following particulars:

a) a statement of ... expenses ... revenue ... assets acquired ... and assets held ... by council at the end of that year for each of the council's principal activities;

b) a comparison of the council's actual performance of its principal activities during that year (measured in accordance with the criteria set out in the relevant management plan)...

c) a report as to the state of the environment in the area, including a report as to:

(i) areas of environmental sensitivity; and

(ii) important wildlife and habitat corridors; and

(iii) any unique landscape and vegetation; and

(iv) development proposals affecting, or likely to affect community land or environmentally sensitive land; and

(v) polluted areas; and

(vi) any storage and disposal sites of toxic and hazardous chemicals; and

(vii) waste management policies; and

(viii) threatened species and any recovery plans; and

(ix) any environmental restoration projects; and

(x) vegetation cover and any instruments or policies related to it including any instruments relating to tree preservation;

If you really want to manage the environment, to make sure that development is sustainable, you have to have a system in place that will deliver your agreed goals.

We have decided to work towards a state of

environment reporting system that is a live management tool. It will be "real time".

It will be used to make sure development and construction in our Shire is within the agreed environmental outcomes decided by the community through their council.

It will monitor those developments on a daily basis and a state of the environment report on agreed indicators will be able to be produced at any time. (See Diagram 1 overleaf).

In the regional sense we will join other Councils and the ACT Government in developing a shared system that recognises environmental impacts do not stop at Shire boundaries.

Firstly I will explain what we plan internally. Perhaps giving an example of how we see it working will give a clearer picture.

A hypothetical development application for a commercial chicken farm is received. It goes to a development assessment officer and she sits down at her personal computer terminal and keys in the portion number. Using the MapInfo program on the GIS system, a map appears showing the site and also a box with all ownership and zoning information. So, first off a check is made if a chicken farm is allowed in the zone.

Being a chicken farm, the assessor knows there will be a number of environmental aspects to consider. On the GIS system there are a number of information layers rather like transparent pages in a book.

The first concern is the impact on local waterways. By going to that layer in the GIS, all catchments are shown. When that detail is overlaid with the topographic layer, drainage patterns can be calculated. A condition may be imposed that a sediment catchment pond be constructed and that water quality in a nearby creek be monitored and reported to Council. The layer of the GIS will be modified to include that information along with a diary note that brings the water monitoring requirement to the attention of the environment officer.

If the development is out of town, the fire risk layer is checked and a decision made if closer scrutiny should be made of the site.

If there is a proposal to clear trees, the latest satellite or aerial photo image is checked. Although the satellite pixels are 20 metres square it gives a fair indication if more clearing will impact negatively on that area and the assessor can judge if that falls within accepted guidelines. The area allowed for clearing for the development is marked on the tree cover layer.

If the area falls into a designated wildlife corridor the assessor will include that in the review and may include special conditions.

There will be further layers to check if it is near any heritage sites, protected wetlands, known habitats of threatened species, acid or easily erodable soils, and for whatever environmental issues the Council will normally consider when assessing development.

What we will have is an environmental monitoring and management system. If the development is approved the impact it has on any of the various layers is added to that layer.

All of which adds up to something with more layers than a chicken farm!

The difference between this approach and what we do now, is that a unified set of information is updated as changes occur. It is inter-related through the GIS system.

On top of this we can bring in appropriate information from other agencies, such as State Water Resources, State Forests and National Parks.

Instead of being isolated in individual files the impact of development approvals, of new roads, of anything that Council must approve, can be incorporated and made easily accessible.

Then when it is time to prepare the State of the Environment Report, a quiz is run against the various indicators - things like tree removal, development rates, water quality, rural landuse and so on. To generate a report against these indicators takes no time at all.

They are added to various statistical and text data required to flesh out the report, including information on waste management, complaints about noise and the like.

Then those figures will be given to professional staff to interpret and recommend changes in policy settings to maintain desired environmental outcomes. They will develop a document describing what is happening and suggesting options that can be taken.

The document is then publicised for community consultation. Already we have a dialogue with key stakeholders in the community like the Coastwatchers conservation group, Landcare groups and our estuary management committees. That dialogue will be extended, and it is possible that the consultation can run in conjunction with our Management Plan consultation. Allready we send a precis of the Management Plan to all homes and businesses in our Shire and we believe we are among the leaders in the State in the degree of community involvement in their Council's affairs.

The final recommendations go to Council to be incorporated into the appropriate places, whether they are planning rules or the management plan. As I said we are in the early stages of the development of this program.

We have acquired MapInfo to enable all assessment staff to work in a PC environment. Until now we have used Genamap on the mainframe. The first layers are going in now and all assessment staff now have PCs.

By using the PC-based software we are able to dramatically reduce costs. We will be able to produce a CD-ROM of the GIS for around $400 compared with more than $6,000 for a similar exercise on the mainframe.

We will use the system in the field, using the CD-ROM and running it on laptops. Staff will be able to take the laptop on site and call up the various layers to determine information. Then, using a "cosmetic layer", they can note changes or corrections, and these can be put onto the system when they return.

We have started to review our indicators so we can determine what information layers we want in the system and to pre-set the quiz that will deliver the Report. We will also have indicators that are meaningful on a regional basis and they will be extracted in the same way. The Region is currently discussing the best ways for information to be made electronically accessible between councils and for

the production of a Report that may be available on the world wide web or as a CD-ROM package.

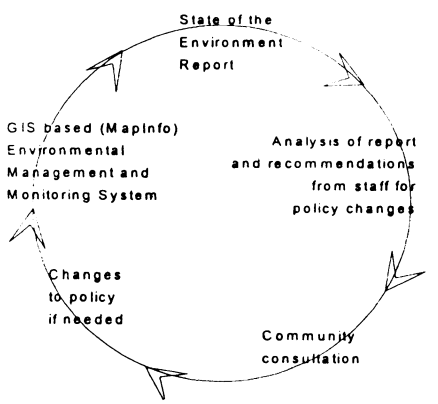
So, you can understand we have changed the way we see things. We are not looking at the need to produce a Report as merely fulfilling a legislative requirement, a ticking of the boxes. Sure, that still will get done. But now as part of a system that delivers results - and hopefully maintains the Eurobodalla Shire as one of the most ecologically complete areas of Australia.

Diagram 1

Eurobodalla Shire's Management Reporting

and

State of Environment Reporting and Monitoring System



Session 2

Panel Member Comments

Panel Member: Prof Val Brown

I would like to respond directly to the two speakers, and also to congratulate the organisers of today. For some 10 years, my research focus has been on local environmental conditions and monitoring in relation to the national, and the national in relation to the local, which has sometimes been a lonely place. I think it is fantastic to be somewhere where it is the focus of discussion and to have absolutely inspiring speakers who take account of that very difficult interaction. It is quite an epic occasion.

To respond to the last two speakers, so many difficult issues are being resolved - Clover Moore and on we go. The ACT has our only Commissioner for the Environment in the whole country, where we have these extraordinary richnesses. The only point I want to take issue with is Joe Baker's calculation that 150,000 people would be needed nationally to produce State of Environment Reports more broadly, according to the ratio used in the ACT. This represents only 20 people in each Local Government area in the country and we heard from Philip Herrick that he must have several hundred mobilised to actually implement and use his management tool. We have the people and perhaps that is a resource that you under-estimated slightly, and we can move forward with some confidence knowing we have that workforce.

One of the issues that does concern me is that the National State of Environment Report still does not acknowledge this pool of people resources committed to the environment.

In the National State of Environment Report, the natural environment, the social environment and the cultural environment are listed, but the economic environment is not listed as a basis for indicators. Both Joe Baker and Philip Herrick have shown us so clearly that we are really ready to move into the quite dangerous interaction between having enough knowledge to be responsible and taking necessary actions. Di Dibley, this morning, said it is a different thing to act irresponsibly if you do not have the

information than if you do. I think we have got to a point where we do have the information and we do have prototypes which Eurobodalla Shire, and Phillip Herrick, among many other Australian local government managers, are offering us. So we have the management tools; but we don't know which are the best yet.

One of the next questions is: if we are using the **pressure <->condition <->state** response cycle, are we are all accepting that each of these are two-way interactions? The three types of interactions are different forms of interactions; they each have different terms of reference. We tend to use our natural resource indicators, which we have now collected very thoroughly (though I know the speaker on soils this morning wouldn't agree - maybe we'll never have enough) but in biology we have this concept of a limiting factor. When you have a limitation on one thing, it does not allow you to go on with other things. I'm suggesting we now have limiting factors, and we haven't addressed the different nature of response indicators and the different nature of pressure indicators from condition or state indicators.

I suggest that the terms pressure, state and response, each have different terms of reference. For instance, response indicators are being dealt with by perfectly new professional standards. ISO 14000 is a response indicator which professionals can use. It is differently based from the biophysical state indicators. We are only nibbling at the edges of pressure indicators - we are not grasping the nettle, for example, that the pressure isn't the extra lead in the atmosphere, the pressure is the number of cars you and I drive, as Ian Lowe politely said. So the really crucial question is "Are we there yet?".

Panel M mber: Prof Robert Kearney

I would like to congratulate both speakers on making one aspect of the big problem that we face very clear and to expand a little on what I think we are all agreed on.

All the speakers today have indicated the complexity of the issues faced by state of environment reporting, and the inadequacies of the data which we currently have to do the comprehensive job we would all like to do.

Underpinning the whole morning session was the intention to go from the excellent National Report towards a national strategy of doing something about that Report.

The last two speakers have given us a strong indication of how progress really can be made - we have excellent cases and studies of where, in the one case, a Territory (or a State-wide) and Regional Report, and in the other case a more localised Report, have been converted into actual management plans and used to guide action. Eurobodalla's case spells it out very clearly for us, that the Report should be used as a management plan. I believe it is very valid and the right way to go.

The real issue then is that the Reports are in fact themselves an indicator, and identifying indicators is one of the real things that we have had trouble doing. The Report needs to be prepared regularly and rigorously. They are getting better, and we need to acknowledge that we only really started this process in 1993 and 1994. The progress has been enormous and whereas those Reports may not have specific indicators of some of the finer scientific detail that we want, they will nevertheless be indicators of community responses to those details and how we, as governments or local communities, are going about responding accordingly, and what progress we are making.

While the problems of data collection are indeed immense, scientists may have a bias in saying this. The real challenge for science is to try and collect data economically and viably, and make sure that it is presented in a format which can be used for these management plans later on. The bad news is that we do not have enough data, and I suppose even worse news is that science in this country is unfortunately losing its stature and funding base. But the positive side is that the one area of science that really is being funded increasingly is environmental science.

The recent *Industry Commission Review* showed that of our total research and development package (1992/3 were the last figures available) 11.7% of our expenditure on R&D was in fact in the environmental area and while that is nowhere near enough it is an enormous increase on what it was 20 years ago.

We are, as a community, identifying the importance of the problems and we have made great progress. You only have to go back to the highways of the '60's littered with cigarette packets and nobody particularly worried about it, to realise that the community has responded. With appropriate direction and clarity about the indicators that we need to address, and effective enforcement, we can make further great progress. There are problems still ahead of us. Using these sorts of Reports as indicators and as management tools is really the way to go.

Panel Member: Dr Helen Sims

It is pretty hard coming in at the end of all this where everything seems to have been said already. But there are four basic things that I would like to pick up and at this stage it is really more just a reiteration of what I see as major points coming out of this morning.

One, which Phil Herrick exemplified, is that it is essential that State of Environment Reporting be incorporated as part of management, which gives state of environment reporting its *bona fides*. The ACT has adopted this approach, with recommendations back to Government and then the Government having to respond to us. This way, we are able to track the effectiveness both of our recommendations and of state of environment reporting itself.

The direction we are now going in our next State of Environment Report, and particularly where we are heading with the Regional SER, is electronic. This will give us a lot more power and accessibility at the workplace. It will not be a book that sits on a shelf and gets used once or twice a year. It will be there all the time and be a practical tool to help in decision-making and planning processes, and we see that as really very, very important.

The second point is that we need an institutional framework for data collection. Stephen Clay referred to the protocols that have been developed by the Hawkesbury-Nepean Management Trust. We are going to pick the protocols up in the ACT and use what has already been done; and we are working together and

collaboratively.

There is some really interesting work going on across Australia, particularly NSW, but wider than that, and we are developing a really good network and piggy-backing on each other and each other's work. The Management Trust is very happy for others to pick up these protocols and use them. We need to work on the protocols, pick them up and develop them for our own use in the South-East Region.

The third issue is the cost of data. Most of us in the region believe that if there is a requirement for state of environment reporting, there should also be access to that data at no cost, or at minimal cost. I know that in the region in NSW they do not have the legislative support that is in the ACT to obtain the data for their SER. This is an area for environmental lawyers and for anybody with any persuasion, when the NSW legislation is being reviewed (as it will be). It is really important to get that sort of authority for local governments to be able to have access to data in the way that we have in the ACT.

Another side of the data issue is community environmental monitoring. We need an institutional framework for data to be collected with community environmental monitoring programs. Such a framework could get the Landcare people, the Streamwatch people and Waterwatch people involved to develop the indicators that we all want, develop the training, so we can actually use the data that are being recorded by these groups and individuals, and to use those data effectively in state of environment reporting.

We then need to get these data back to the groups to validate and reinforce what they are doing on a regular basis. I would like to see community grants being channelled in that way.

The other big development is in remote sensing for state of environment reporting, and again there is value in using community groups and the work they are doing to validate, and to ground-truth, the remote sensing that is being done.

Finally, on the independence of reporting, the position of the Commissioner for the Environment is very valuable in the ACT. It is the only area where reporting is done independently of government. The State of Environment Advisory Council was also an independent group for the National State of Environment Report. It has been mentioned several times to us in our rounds of the Region, that it would be quite useful to have an ombudsman or somebody of the status of the ACT Commissioner for the Environment, to actually prepare the regional State of Environment Report. That would remove it one step from the complications of Councils reporting on a Council's behaviour.

Discussion

Summary of Key Issues Raised In Discussion

Realisable Pressure - State - Response Indicators

(Dr Baker) In fairness to Val I should try to respond to her question. I might say it will be a very inadequate response because the whole question of indicators and what are viable, valuable, economically realisable indicators, of condition of pressure and response, is a challenge being addressed at the national level. Unless answers are found, we are not going to get really effective State of Environment Reporting. If you look at the question on the surface, it is nice and simple. The elements are nicely separated - there is a condition or state on the one hand and pressures can be identified on the other, and there are also responses. But what are responses - are they responses by people, are they responses by Government or are they responses by the system itself? If they are responses by the system, then that is a change in condition and so it is not only interactive, but also continuous.

Professor Brown was on the ACT reference group for the urban environment. If you think natural conditions are difficult you really want to try getting into the urban environment. If you are talking about indicators, as somebody mentioned this morning, you can measure the pH of the soil or the pH of the water. But if you want to measure a social amenity it is very difficult, because people at the age of 16 might have very different requirement to the people at the age of 70. The whole question of comprehensively incorporating urban considerations in state of environment reporting is perhaps a few years down the track, even though we already have to take into account the urban footprint.

I would like to see state of environment reporting more concerned with issues other than human issues. Humans have some degree of control over the environment, whereas other living species have lesser control, and we really have to give a lot of consideration to that aspect. Dr Sims is an expert in social science and more able than I to talk on social and urban indicators.

Availability of Data

(Dr Baker) I doubt if there is such a scarcity of data out there as everybody assumes. We really don't know what data are there. The data may already have been accumulated and, worse than gathering dust, are in files you can no longer open or use easily. People forget what they were first measured for. Are data in a format which is going to be useful? The sooner we can get access to available data and interrogate those data to translate into information which we can use, the sooner we will get the knowledge. I really think you have to distinguish at least those steps - from data to information, to knowledge - as

steps that are essential in this planning process.

Management Information Systems and the use of Indicators

(Phil Herrick) If I can speak on behalf of Local Government, we have to keep indicators simple. We really cannot afford to get too carried away with the collection of data. At the point of assessing an application is really one of the main times when the community can control the impact which something will have on the environment. A major development proposal is one of the few times people come to a Government instrumentality. It is also one of the few times the community and governments can control impacts.

At the moment in the community, in Australia in general, there is a feeling that you cannot do anything because Government is blocking you at every turn and that we are over-regulated. Councils are copping that concern every day, and that is equally so in Eurobodalla, where we are growing fast. I imagine areas that are economically depressed are copping it more than us. If we come in all the time adding costs of environmental requirements, we have really got to be aware of other consequences.

I would like to make an appeal, when we are talking about indicators, state of the environment reporting, government regulation of the environment and community involvement and the like, to keep it simple.

Also be aware of the wider game and the fact that somebody has to do it - generally it is Councils who have to do it.

Understanding Critical Thresholds Of Change And Setting Priorities For Action

(Dr Baker) We can see trends starting to emerge in air quality and water quality which indicate that certain actions have to be taken. Considering the Murray-Darling system, which was referred to this morning, the indicators of salinity there and the increased soil salinity can be traced back to certain types of human practices. On different types of river catchments there are indications that certain types of activities, such as excessive irrigation and excessive removal of vegetation, can be damaging.

Some of the recommendations made in the *ACT State of Environment Report* already indicate that we believe that there are trends starting to be observed of which we need to be very conscious. Within a couple of years these might be strong enough to make very firm recommendations.

Indicators and Responses to Species Extinction

(Dr Baker) Looking at the issue of species extinction, it goes back to one of Neil McKenzie's comments and the need to be able to use information to project into the future. We would always get criticism from the perfect scientist for that sort of projection - they would say we haven't got long enough data sets to do it. But my feeling is that there would be indicators that suggest certain types of precautionary action.

The example Dr McKenzie gave of erosion is particularly relevant. Erosion is such a significant issue that even without certain types of measurements, if there are certain types of soil in a region and a certain type of activity is proposed, previous experience would indicate whether that activity would or would not be wise.

State of Environment Reports should be used in that projective way, particularly now that we are starting to use remote sensing data (which are ground-truthed), which enable us to observe things which may not have been able to have been observed before, and suggest why they occurred and what should be done to avoid them occurring in the future.

Government Action - Informed Accountability

(Dr Sims) I do not believe that State of Environment Reporting will tell us things that scientists or experts working in particular fields do not already know. What I see as the function of state of environment reporting is to pull all that information together and bring it into the public arena. As an example, it appears that the reporting of the diminishing grasslands in the ACT in our SER had quite a lot to do with the greater protection of grasslands afforded this year.

SER brings issues, that might otherwise just lie fallow, into the public arena and then, particularly with our process of making recommendations, the government is more accountable. We professionals have to be accountable too, and responsible in the sort of recommendations we make, but governments are made more accountable when they know the situation - it is there and the government has to respond to it.

Quantification of Indicators Justifies Action

(Speaker from the audience) It is unfortunate that the word indicator is over emphasised. To take management action, you are after a lot more than an indication that there is a problem. A natural resource management problem that we share with other countries is fisheries management. For over 25 years, the key indicators say that there have been successive declines in fish stocks without a single turn-around, but the industry still exploits the uncertainty that perhaps the turn-around is going to come next year. We must be careful not to get hung up on the word. We need a lot more than indicators. We actually need to take management action, supported by expressions of certainty from scientists about what will happen unless action is taken.

It gets back to the precautionary principle. We need to be really mindful that we are after factors that can be quantified. When you get down to trying to manage lobby groups and the last one who had access to the Minister, or whoever it happens to be making decisions, you are going to need a lot more than indicators.

The Precautionary Principle - Cultural Challenge of Environmental Monitoring

(Prof Brown) The precautionary principle - taking action to change certain practices - poses complex challenges to our culture right now. Environmental monitoring is an extraordinarily strong cultural change tool and we are almost, dare I say it, not game to say that is what we are on about. Twenty workshops are being conducted around the country with groups of Councils and I have great respect for the people who have to prepare state of the environment reports. It is hard, and they are the ones who get pulled to pieces by the crowds and often the response is "This is reversing the standard of

professional practice we have used for decades" It is reversing practice from saying "Do it if you can, develop if you can, make the most of what you have."

The precautionary principle says "do not do it if it is going to be too much of a long term risk and do not wait until you are certain if you think the risks are too great". The implication for our basic values is clear. This whole monitoring process is part of the change. I would not want to make too big a claim, but that is my comment. We are in a big game.

Land Surveys and Local Government SER

(Mr Herrick) Eurobodalla has very effectively used the CSIRO's extensive survey of the Region. It was a 5 volume data set and really was the most wonderful start to a planning scheme for the Shire. The information is not dated, and it is used all the time. In fact, the NSW Government has just produced a draft settlement strategy for the South Coast of NSW and it was a major source of information for them.

The physical information in it, the geography, the soils, the climate has not changed - so it is still as relevant as it ever was, unless new data has been collected. Obviously, the socio-economic data has changed radically.

As the person who has prepared the SER for our Council, I have used the CSIRO's Report as a reference - the summaries in particular - for descriptions of soils and basic elements that did not change over time. But we have not integrated the SER into the GIS system yet, and I am not aware of any proposal to do that.

(Dr McKenzie) The challenge for most Local Governments is to set up a system equivalent to that in Eurobodalla. Most other Councils have nothing like it and are only now starting to achieve what a lot of people have wanted for many, many years. Eurobodalla is a great model. The land survey provides background context for the basic landscape.

Establishing Regional SER's

(Dr Sims) The proposal put to the Regional Leaders was that for detailed Local Government Reports to be required under the NSW Local Government Act. One concept for the Regional Report, if it were in hard copy, was to have appendices for the 17 Local Government Authorities in the Region, containing all the detail they wanted. We wanted to ensure that Local Government would meet their responsibility.

With the electronic format, you can have a system where a certain amount of information goes into a regional database and is accessible by anybody in the Region. You may still have other data that is accessible locally, particularly if you do have a system, which we envisage, where a specific LGA might want to reference a local aspect which is not regarded at this stage as being important regionally. So the concept is to have local information and regional analysis.

(Mr Clay) The South East Regional grouping is also looking at water catchments as well as regional boundaries. Local catchment issues need to be covered too. That may mean crossing a few Local Government boundaries, but we still have to report, and the NSW legislation requires that each Local Government Authority be identifiable so that SER can be put into each of their management plans.

We have to comply with this requirement, so the legislation does keep the task of reporting at the local level. But we see it as extending into Regional level catchment management. Natural boundaries as well as government boundaries are being covered.

(Mr Herrick) When we started the Regional SER I understood that the real use of it was on the Tablelands here, if a piggery was approved in Tallaganda on a stream that ran into Yarrowlumla, then Yarrowlumla would know because of this regional networking. Hopefully by having it on an interrelated electronic system, they would know pretty well immediately what sort of impact was likely. We could consider loads on streams for example. I would like personally to see that system.

When you are talking about these building blocks as a region, particularly so for the South-East Region and the watershed that leads into the Murray Darling basin, links could be made to the Riverina Region and Riverina land management. It would take a lot of coordination, but it is definitely worth thinking about.

(Dr Baker) We were given $40,000 from the Regional leaders which allowed us to bring in a Project Officer to review data availability, including where data sources are held; and to communicate with each of the LGA's or groups of LGA's about their data needs and what they want to see coming out of the Regional SER. Dr Sims has been going with the Project Officer talking to the LGA groups.

There is another meeting of the Steering Committee on 8 October 1996 and by 14 November 1996 we have to produce the Final Report which will then go to the Regional Leaders Forum. The format is not yet decided. We have to identify needs first, and then see if we can devise a format which will meet all those needs, as well as address the Regional aspect that Phil Herrick just mentioned. It must also allow for the same sort of layering that Phil demonstrated for his chicken farm.

We are at a comparatively early stage in the investigation, but it now has to proceed at a remarkable rate.

(Dr Sims) The shape and form of a "central clearing house" for data also needs to be clarified. We want to have a central data management system which picks up on what Neil McKenzie was referring to. If everybody was like Eurobodalla we would not have much of a problem, but many Councils do not have GIS, and those that do are just starting out, and they have not got much of their data on the systems. We have to work out how to manage those differences and what's involved in being able to pull all the regional data together from all the agencies and how to distribute it accordingly within the region to exchange data two ways - from them to us and from us to them. The system has to be worked out quickly, with about 6 to 12 months work in two.

Service Providers and Data Availability

(Dr Sims) The ACT Electricity and Water Corporation (ACTEW) has recently completed a study in the Region and some of this data will be very useful for the Regional SER. By and large ACTEW's major contribution to our State of Environment Reports is as a major monitor. If all organisations contributed as much as ACTEW does, our job would be significantly easier. It has been very generous

in providing staff to assist and we hope that sort of thing will increase.

(Speaker from the audience) One of the problems with data collection in Australia at the moment is that a lot of agencies that are collecting data which is useful in terms of environmental monitoring and state of the environment reporting, are in various processes of commercialisation or outsourcing of functions. A lot of that data capture is disappearing. It unfortunately does not pass the hard economic rationale which requires subscribing a value to it. In other words, to use their terminology, it is a non-core function. One of the things that has to be looked at very carefully is not only what data is needed but who is going to collect that data. There is a need for pressure upon the Governments to remind them that that data is still necessary.

Longer Timeframes for Reporting - Annual Progress Report on Responses to R comm ndations

(Dr Baker) A speaker from the audience has suggested having an annual report on progress in implementing SER recommendations in between the proposed three-yearly SER reports.

Our next Report is due at the end of June 1997. This will be a major report and it may, perhaps too optimistically, even include Regional aspects. Thereafter we would move to three-yearly reports with yearly reports on topics of special interest. The topics of special interest or concern might be community driven, but it would be opportune in the annual report to include a comment on the Government's response to previous recommendations. So it is a possible addition - we have not yet got into the system.

(Dr Sims) We are flagging ideas for the best format of the interim reports, so if anybody has any ideas they want to convey we would be happy to receive them.

Co-ordination between Government Agenci s for Monitoring and Land Management

(Dr Sims) One of the frustrations which NSW local governments experience is the lack of coordination from the Government agencies about the different standards that were set by the EPA; and the reluctance of Government agencies to provide advice to Councils and then stand up and be counted with regard to the implications of that advice.

(Dr Baker) Minister Hill, in his second reading speech for the *Natural Resources Australia Trust Bill*, specifically addresses the point of getting Governments to work closer together and to provide information more freely (see page 4). Senator Hill and John Anderson have both said they want greater co-ordination at the Federal level - I am unable to comment at the State level. The other factor which is relevant, apart from the *Land and Water Audit*, is the commitment by both Ministers to integrate environmental protection and agricultural production. There are so many aspects of this, including an emphasis on natural resources management and the *National Vegetation Strategy*. Vegetation is of course not only trees, it includes native grasses and plants. If you read the Bill you would at least see from the Federal level an indication of what they would like to do.

Look too, at what the National Landcare program is supporting in property management planning and whole of farm management planning, which means an analysis of all your types of soil on your farm and whether you are actually doing the appropriate practices for that. There is a whole raft of things happening but the coordination of them is going to be very intricate and that means you are going to need very strong Ministers to push it through.

Ministers in North Queensland are looking at this very issue today, on the viability of some types of agricultural practices in the wet tropics of Australia.

(Dr McKenzie) When we were preparing the Land Resources chapter for the National State of Environment Report we felt we did not do a very good job on analysing the whole issue of viability of agriculture. There were mega-forces that were well beyond anything local. For example, international markets are a critical issue in terms of land degradation in Australia. Combine that factor with our very fickle environment. In a sense these are the real system determinants. We have to avoid doing a lot of cosmetic work that ignores such important factors.