Proceedings from the Environmental Impact Assessment and Procedures Public Seminar DCE Bulletin 142

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Public Seminar

held on 14 July 1983
at the South Perth Civic Centre

Department of Conservation
and Environment
Western Australia

Bulletin 142
August 1983

PROCEEDINGS FROM THE

ENVIRONMENTAL IMPACT ASSESSMENT AND PROCEDURES

PUBLIC SEMINAR

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Western Australia

Bulletin 142

Department of
CONSERVATION and ENVIRONMENT

PUBLIC SEMINAR

ENVIRONMENTAL IMPACT ASSESSMENT AND PROCEDURES

This Bulletin contains the papers and edited discussion from the public seminar held on environmental impact assessment and procedures on 14 July, 1983.

The main reason for holding the function was to encourage a free interchange of ideas on the assessment process between all sectors of the community prior to the Government drafting amendments to the State's environmental legislation. The Department was grateful that the Hon. B. Burke, MLA, Premier of Western Australia, could open the seminar and that the Hon. R. Davies, MLA, Minister for the Environment chaired the day's proceedings.

Over 350 people attended the seminar and because of the numbers which inhibited discussion, it was decided that the Department of Conservation and Environment would receive written submissions on the topic for a further three weeks from the public: whether or not they attended the seminar. It is planned to publish a summary of these submissions in a further Departmental bulletin*.

This seminar was the first stage towards establishing a better system of environmental assessment in Western Australia.

Colin Porter

C F PORTER
DIRECTOR

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* 'Summary of public submissions on Environmental Impact Assessment and Procedures'. Bulletin No. 147, Department of Conservation and Environment, Western Australia (in press).

1 Mount Street, Perth, W.A. 6000 tel. 322 2477

PUBLIC SEMINAR

Environmental Impact Assessment and Procedures

Thursday 14 July 1983
South Perth Civic Centre.

Chairman: Hon. R. Davies, MLA,
Minister for the Environment.

8.15-8.40 **Registration**

8.45-9.00
Opening
Hon. Brian Burke
Premier of W.A.

9.00-9.15
Introduction
Hon. Ron Davies
Minister for the Environment

9.15-9.45
Environmental Assessment — W.A. and other Australian States
(20 minutes plus 10 minutes discussion)
Mr. Colin Porter
Director, Department of Conservation and Environment

9.45-10.00
Agreement Acts and Environmental Assessment
(10 minutes plus 5 minutes discussion)
Mr. Stuart Hohnen
Co-ordinator, Department of Resources Development

10.00-10.30 **Morning Tea**

10.30-11.00
Proponents Viewpoint 1. Land-Use Developments
(All sessions 20 minutes plus 10 minutes discussion)
Mr. Laurie Humphry
General Manager, Parrys Esplanade Pty. Ltd.

11.00-11.30
Proponents Viewpoint 2. Industry
Mr. Eugene O'Callaghan
Confederation of W.A. Industry

11.30-12.00
Proponents Viewpoint 3. Mining
Mr Barry Carbon
(Manager—Environmental Department
Alcoa of Australia (Pinjarra))
The Chamber of Mines Inc.

12.00-12.30
Proponents Viewpoint 4. State Projects.
Mr. Kevin J. Wulff
Manager — System Development, SECWA

12.30-1.30 **Lunch**

1.30-2.00
Environmental Economics in Assessment
(All sessions 20 minutes plus 10 minutes discussion)
Mr. John Thomas
CSIRO

2.00-2.30
Defining the Scope of Environmental Impact Assessment
Dr. Malcolm Hollick
Dept. of Civil Engineering, University of W.A.

2.30-3.00
New Approaches to Environmental Assessment
Professor Des O'Connor
Foundation Professor of Environmental Studies,
Murdoch University

3.00-3.30 **Afternoon Tea**

3.30-4.00
Conservationists' Viewpoint
(20 minutes plus 10 minutes discussion)
Mr. Peter Johnson
(Senior Lecturer in Law, University of W.A.)
Conservation Council of W.A. (Inc.)

4.00-4.30
Public Participation in Assessment
(20 minutes plus 10 minutes discussion)
Dr. Geoff Syme
CSIRO

4.30-5.15
Forum
(45 minutes)
All Speakers

5.15-5.30
Rapporteur
Professor A.R. Main
Chairman, EPA

5.30 **Close**

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Opening Address

Hon. Brian Burke MLA
Premier of Western Australia

I welcome you all to this important public seminar on environmental impact assessment and procedures, and I congratulate the Minister for the Environment, Hon. Ron Davies and his Department for organising today's programme.

The last seminar held in the State on this subject was in 1976. That too was opened by the Premier of the day and I am told it provoked some lively debate. However it was confined to invited persons only: today's seminar is open to everyone. This reflects the Government's policy of encouraging active public participation in decision-making on environmental issues - and of recognising this as an inalienable right.

As well, I reaffirm my Government's commitment to protect and enhance the environment, which brings me to environmental responsibility. This is primarily a State concern, although the Commonwealth Government has some interests in national environmental matters.

In this State there are over 50 Acts of Parliament which deal with various aspects of the environment. However overriding them all is the Environmental Protection Act.

When the then Premier, John Tonkin, introduced that legislation in 1971, he said the basic function was to enact effective legislation for the protection of the environment of this State.

That basic function has remained - and will remain - unchanged, because protection and enchancement of the environment is an essential component in maintaining and improving the quality of life in this State. This I see as a fundamental human right for every person in Western Australia and, more importantly, for future generations.

Therefore this Government will not mortgage the future for political or economic expediency today, because we know, as others have found before us, that the cost of protection now is far less than the cost of correction later.

Nevertheless, particularly in these times of economic austerity, it would be irresponsible not to review Government decision-making processes to increase efficiency and effectiveness.

It is our intention to examine the Environmental Protection Act and the way it operates.

There are four key areas that we will be looking at closely:

- the composition and duties of the Environmental Protection Authority
- the procedures under which the EPA operates
- the role of public participation in environmental decision-making
- pollution control measures

Fundamental to all these is environmental impact assessment. This process has been an integral part of environmental protection measures in every Australian State and in most developed countries in recent years. Except for Tasmania and Western Australia, all Australian States and the Commonwealth to date have legislated for formal assessment procedures.

In this State, procedures have evolved in a learning process over time, in a similar manner to other States. While they have been proven effective in ensuring that proposals for developments are referred to the EPA for assessment, the Government does not believe they are perfect.

As part of our review we will be looking at these procedures and the case for statutory backing. This we will do with cooperation, not conflict, with concerned persons and organisations.

Lack of legislation leaves uncertainties for proponents and the public alike. For example, at present there are no requirements for reports to be published, no opportunities for public hearings and no rights for the public to be involved.

As well, we intend to examine the feasibility of including economic considerations in the assessment process in the form of benefit-cost analysis or similar techniques. Its omission has been a deficiency in past assessments.

Today's seminar is the first step towards a better system of environmental assessment in Western Australia. We seek your comments, whether philosophical or procedural, to help us achieve that objective. I thank the speakers and the audience for making the occasion possible.

I invite you all to listen to the papers, participate in the discussion and freely exchange ideas. You may not all agree, but you will have the opportunity to be heard.

Your Chairman for the day is Hon. Ron Davies, Minister for the Environment, and I doubt whether you will have a better opportunity to present your views.

It gives me much pleasure to declare this Seminar open.

Introduction

Hon. Ron Davies MLA
Minister for the Environment

The Premier has foreshadowed the intention of the Government to review the Environmental Protection Act and, as part of that review, to examine existing environmental assessment procedures.

He also invited your participation in this Seminar as the first stage, of establishing a better system of environmental assessment.

This is the major reason for organising today's function. I am here to listen to all points of view before any legislative amendments are drafted.

I stress that the Government has an open mind at this stage although the Premier has outlined four broad areas of particular interest.

- Firstly the composition and duties of the Environmental Protection Authority (EPA) will be examined with a view to returning the Director of Conservation Environment to the EPA as well as looking to the need for widening its membership.

  The EPA and the Department of Conservation and Environment (DCE) will remain the principal advisors to the Government on environmental matters and the principal vehicles for enacting the Government's policy on the environment.

- Secondly, the procedures under which the EPA operates, including environmental impact assessment, will be reviewed because it has been a number of years since this has been done. The Government considers that the time has come for the Environmental Protection Act to be strengthened.

- Thirdly, the role of public participation in environmental decision-making requires strengthening. The public has a right to information and a right to participate in decisions which affect its environment.

  As well, the Government will look at the case for public hearings and machinery for the public to object to actions or omissions of the EPA.

- And fourthly, the Government will look at pollution control in the State to see whether the presently fragmented system might not be more efficient in a combined form.

  Although largely written as pollution control legislation, the Environmental Protection Act is deficient in some key areas necessary to undertake these tasks.

The review of the State's environmental legislation should not be seen as critical of the Environmental Protection Authority or the Department of Conservation and Environment. On the contrary, both have achieved a great deal in spite of the Act which has been largely irrelevant to their functions to date.

The basic tool for the sound assessment of environmental effects of development proposals is environmental impact assessment.

In Western Australia, this process has the following objectives:

- to demonstrate, publicly where appropriate, that environmental considerations have been integrated with all stages of project planning and alternative actions evaluated;
- to make predictions of likely environmental impacts based on known and collected data;
- to make commitments to ameliorate and minimise impacts through management and monitoring;
- and to modify management in accordance with monitoring results if and when the project proceeds.

Historically, the first procedures for impact assessment were prepared by DCE for the 1976 workshop mentioned by the Premier. Before then, proposals were assessed on a case-by-case basis. Since 1976, the procedures used have evolved with experience over time. The present 'state of the art' will be discussed by Colin Porter this morning.

However, it is worthwhile seeing assessments in perspective. Since 1976, the EPA and the Department received somewhere between three and four thousand referrals of a wide nature. Of these, 22 have proceeded to the most sophisticated and detailed assessment undertaken, that is, an Environmental Review and Management Programme (ERMP). A further 6 are expected to be submitted within the next year.

Government projects comprise the largest number of ERMPs: 9, with mining 7, land-use planning 5, and industrial 1.

ERMPs have always been public documents, and, with one exception, the EPA reports on such proposals have also been made public.

It is this Government's policy that all EPA reports on proposals will be made public except in the most extenuating circumstances such as national security.

In evaluating the need for statutory backing for environmental impact assessment, we are cognisant of not reducing flexibility in the current system, but to provide clear, enforceable guidelines for proponents and Government alike. Within the ambit of assessments, we will be looking at the inclusion of economic and social considerations, both of which would require widening the scope of existing practice.

This seminar has been deliberately structured to present a wide range of views. The two Government speakers will be setting the scene by explaining the present situation. They will not be proposing any specific changes or recommending a preferred course of action.

The session after morning tea will give those who initiate developments a chance to set out their views. We have identified four types of development: land-use, secondary industry, mining, and finally the government agency which is subjected to the same procedures as private industry.

During the afternoon, we have invited a number of individuals to present personal points of view. All of these have a close interest in environmental assessment, but are not involved either in developments or in government. Two come from CSIRO and three from the universities. I am sure that they will present interesting perspectives on the process, but again they have been asked to cover specific aspects.

Finally, we have allowed time for a discussion forum which is probably too brief, but nevertheless will allow those in the audience to participate, and the Chairman of the EPA, Professor Main, will have the difficult task of summing up the day's proceedings.

I must emphasize that while the two departmental speakers have been asked to be factual, no restrictions have been imposed on any of the other speakers. They are welcome to be as controversial as they wish, and I have no doubt some of them will.

We recognise that it is not possible within a single day to cover all points of view, nor to give everyone attending the seminar a chance to contribute. For this reason, we invite you to follow up today's seminar if you wish by forwarding written comments within the next three weeks. I promise that the Government will take into account all written submissions received within this period.

The Department of Conservation and Environment will receive any written comments on environmental impact assessment and procedures, whether covered today or not, until 5 August 1983. These, with today's proceedings, will form part of the legislative review.

Now, as your Chairman for the day, I have pleasure in introducing the first speaker, Colin Porter, Director of the Department of Conservation and Environment.

Environmental Assessment - W.A. and other Australian States

Mr. Colin Porter
Director, Department of Conservation and Environment

HISTORICAL BACKGROUND

The demand for the environmental assessment of major developments first became apparent some twenty years ago in the United States. It appears to have been caused by the increasing capacity of large projects to adversely affect the environment, and in the early years focussed largely on massive earth-moving operations such as dam and highway construction and strip-mining. It followed a rising tide of public concern for the environment led by such issues as the widespread introduction of persistent pesticides, the unsatisfactory disposal of toxic and hazardous wastes, and the noticeable deterioration in air and water quality in many countries.

A number of international conferences crystallised the concern of academics and government scientists on the lack of consideration being given to the environmental and social effects of many large projects. The Biosphere Conference organised by UNESCO in 1967 was attended by representatives of 65 countries and among its important conclusions was an appeal to the World Bank and the United Nations that development programmes should include a more ecological approach in pre-investment surveys.

'The Careless Technology' Conference held at Washington University in 1968 included several important papers on the subject. In a forward to the conference papers, the editor wrote: 'In example after example, we found large dams, irrigation projects, oil and mineral development, industrial plants, nomadic settlement efforts, resettlement programs, heavy agricultural machinery, medical aid, food distribution efforts, chemical pesticides and fertilisers, animal husbandry products, road construction efforts and programs to build fossil fuel, and atomic energy plants were being promoted throughout the world with little or no attention to their environmental consequences. One of the central elements affecting the productivity of any region - the specific character of its ecosystems - had almost always been ignored. As a consequence, the bulk of international development to date has often been destructive'.[1]

One of the speakers, Thane Riney, then representing the United Nations Food and Agricultural Organisation (now living in Western Australia and consultant for the State Conservation Strategy), pinpointed one of the principal problems in a paper presented at the same Conference: 'Much of the assistance which has been given to developing countries has used criteria found within the teacup perimeter of various single disciplines. Within this limited horizon, decisions have often been well meaning and seemingly logical, but catastrophic in their ultimate effect on the environment'.[1]

In yet another paper at the same conference 'Organising Scientific Investigations to Deal with Environmental Impacts', Gilbert White of the United States sets out some basic parameters for environmental assessment. The scene was then set for the first Act to appear on the legislative stage - the US National Environment Policy Act of 1969 (NEPA).

The United States shares with Australia a federal system of government in which powers are allocated to both central and state governments, however there appears to have been a greater disparity between the attitude of the various States towards the environment in America than in Australia. During the 1960's the US Government appears to have been drawn increasingly into environmental legislation against a background of opposition from the States.

As early as 1959, a Bill called 'The Resources and Conservation Act' was introduced into Congress only to be dropped after opposition from the President. However, many of the provisions reappeared ten years later in NEPA. That Act established a national environment policy with goals for achieving it, a requirement for the Federal Government to prepare environmental impact statements on all actions which significantly affect the quality of the environment, and a three-person Council on Environmental Quality (CEQ) to advise the President on implementation of the Policy.

The Act was more notable for its deficiencies than its substance. CEQ was given no regulatory powers or funding so that it had no statutory role other than advising the President. The section on environmental assessment did not specify who should prepare an EIS, what criteria should apply, how it could be decided if one was needed, or who should assess it. It was clearly intended to apply only to the actions of Federal agencies.

However, the legal system has been used extensively to establish a very strong and all pervasive Act in a way that could not occur in Australia. No sooner had NEPA been signed into law than the actions of Federal agencies began to be challenged in the courts by conservation societies and citizen action groups. In the absence of clear legislation, interpretation was left to the courts and a succession of legal decisions has built a structure around NEPA.

Firstly, the courts decided that even small local projects fell within the ambit of the Act. Then, it was decided that those agencies which had produced internal guidelines covering environmental assessment were bound by their own guidelines. In a landmark decision following a citizen action, the court ruled that the Atomic Energy Commission was required to fully determine the effect of the heated effluent from a proposed nuclear power station on Chesapeake Bay, rather than merely give an undertaking that the discharge would meet Federal effluent standards.[2] Several agencies claimed exemption on the grounds that their own Acts did not require them to comply with NEPA. These arguments were not upheld by the courts.

Fortunately, CEQ came to the rescue after NEPA, or rather its interpretation, created a considerable backlash due to delays to urgently needed public utilities such as power and highways. The Council established guidelines and criteria for the preparation of impact statements to resolve many of the issues being argued in the courts.

Some of CEQ's decisions were:

1. That the EIS should adequately canvass alternatives to the proposed development.

2. That environmental analysis must be consistent with the extent of the anticipated environmental impact.

3. That where a development was undertaken by a State government, consultant or contractor, the final EIS would nevertheless have to be presented by a responsible Federal officer.

4. That alternatives which did not lie within the capacity of the proponent must nevertheless be considered.

Several States in America picked up the impact assessment provision of NEPA and introduced it into their own legislation. For example, under California's Environmental Quality Act, all changes to plans and all development applications undergo environmental assessment. In some cases, these have been combined with land-use planning and development control.

Other countries have successively introduced either environmental impact legislation or administrative procedures under government direction. One example is the Canadian system which established a Federal Environmental Assessment and Review Process (EARP) in 1973. Responsibility for screening projects lay with the Federal department or agency handling the development. If it is decided that a significant environmental impact is likely, responsibility passes to the Federal Environmental Assessment Review Office (FEARO). FEARO then appoints an expert panel which produces guidelines for an EIS and then assesses it after it has been prepared by the proponent. FEARO reports directly to the Minister for the Environment. However, lack of statutory backing led to the expert panels being unable to subpoena witnesses or demand access to documents, nor was there any framework for public review.

In New Zealand, the Commission for the Environment was established in 1972 with procedures for environmental impact assessment the following year. Statutory recognition of the Commissioner's role in impact assessment did not occur until the National Development Act of 1979. The latter was introduced in an attempt to integrate environmental assessment land-use planning and development control and so speed up development approvals. The Environmental Protection and Enhancement Procedures require proponents either to carry out a mental check; or to produce an impact assessment document where only an appraisal is required; or to prepare an Environmental Impact Report for a major development, in which case the assessment is undertaken by the Commission.

Developed countries to introduce environmental assessment legislation in the decade following NEPA included:

Australia 1974
Germany 1975
France 1976
Norway 1977
Luxembourg 1978
New Zealand 1979.

THE AUSTRALIAN SITUATION

The Commonwealth and most States introduced non-statutory environmental assessment procedures by Government directive in the early 1970's. The Commonwealth Government announced a policy of requiring environmental assessment of its own developments in 1972, with an extension the following year to projects undertaken by the States, but funded by it.

New South Wales also introduced a policy in 1972, Environmental Standard E1-4, setting out the principles and procedures to be adopted in that State. All agencies with decision-making powers over developments, including local authorities were required to ensure adequate protection of the environment. Victoria also started with a non-statutory process of assessment in 1974. Queensland introduced a policy for evaluating environmental impacts in 1972, and amendments to the Local Government Act in 1973 required local authorities to consider the likely environmental impacts of proposals, permitting them to require an EIS.

South Australia has undertaken environmental assessment for public works following a Cabinet decision in 1973. Western Australia and Tasmania both included sections in their original legislation which allowed the EPA, in the case of the former, and the Director of Environmental Control, in the case of the latter, to call for information in respect of development proposals.

In the following decade, there has been a steady trend towards envrionmental impact legislation, starting with the Commonwealth's Environment Protection (Impact of Proposals) Act, 1974 and the Administrative Procedures introduced the following year. Victoria followed with the Environment Effects Act 1978 and the Northern Territory's Environmental Assessment Act 1982 (not yet proclaimed).

Two States, NSW and South Australia, combined their planning and environment departments and produced combined planning and environmental assessment legislation: New South Wales with the Environmental Planning and Assessment Act 1979, and South Australia with its Planning Act 1982, one section of which (49) deals specifically with environmental impact assessment. Queensland amended its State Development and Public Works Organisation Act (1971-81) in 1978 to provide a framework for the analysis of environmental effects of development proposals (Section 29).

That left only Western Australia and Tasmania without any legislation specifically intended for environmental impact assessment. The Tasmanian Environment Protection Act 1973, which is primarily pollution control legislation, includes a section (24(1)(c)) which requires any person seeking a licence to operate scheduled premises to give the Director such plans, specifications and other information as he may require. The Western Australian Environmental Protection Act 1971 included a section which required Ministers to refer to the EPA any development which might have a significant effect on the Environment. The Act was amended in 1981 to limit the EPA to reporting only to its own Minister. The amendments also deleted the provision enabling the EPA to publish its report in certain circumstances, and removed the power to require information from local authorities.

It is of interest to note that although there are broad similarities, assessment procedures are not identical anywhere. The most common arrangement is a general requirement for proponents of major developments to produce a brief 'triggering' document on which basis a decision is made as to whether a full EIS is required. This triggering document is called a Notice Of Intent in the Commonwealth legislation and in South Australia and Western Australia; Preliminary Environment Report in Victoria and the Northern Territory; and Statement of Environmental Factors in Tasmania.

The decision as to whether a full EIS is required or not can be decided either by the Minister, decision-making authority, or Director of the Department depending on the State. In each case, the proponent prepares the EIS, although in South Australia there is provision for the Minister for Environment and Planning to arrange for its preparation at the proponent's cost. The document is normally published for a limited period for public comment, and the original EIS together with departmental advice and public comment is then assessed by the Department of Environment. The assessment advice is sometimes published, but in any case is used by the decision-making authority as it sees fit. Nowhere are recommendations in the assessment report binding on the decision-making authority.

Variations on this most typical arrangement are greatest in Queensland which has a different system under which the EIS is developed at a succession of round table meetings between the proponent, or his consultant, and the various Responsible Authorities and Advisory Bodies. Delegation of responsibility to local authorities is more common-place, and there is no central Department of Environment to provide a core of expertise. There is therefore no final assessment report since the EIS must have satisfied all requirements before it is completed.

Other variations are that there is no automatic right for the public to be involved in Queensland and Tasmania, although submissions are usually encouraged. The assessment report for the Commonwealth is never made public, rarely in Tasmania, usually in Queensland, Western Australia and the Northern Territory and always in New South Wales, Victoria and South Australia. New South Wales regularly makes use of public inquiries, the other States rarely or not at all. A summary of the position in the Commonwealth and various States is shown in the Table. [3] (See Appendix)

THE POSITION IN WESTERN AUSTRALIA

Western Australia and Tasmania are the only two States which do not have statutory backing for the environmental assessment process; however, both have established procedures. Western Australia is unique in having a statutory authority (the EPA) involved in the assessment process, although early assessments in NSW were undertaken by the Director of the State Pollution Control Commission.

The WA procedures are described in Bulletin 38 published in 1980. Before 1978, environmental impact statements were not required. In 1976, the former Director wrote: 'Environmental Impact Statements have not been considered necessary in Western Australia. The tendency elsewhere to treat an EIS as the ultimate in environment protection can lead to attitudes more detrimental to proper environmental consideration that otherwise'. [4]

Nevertheless, the procedures have become well established since 1978, although retaining considerable flexibility, and the number of impact statements has increased steadily since then. The title 'Environmental Review and Management Programme' has been adopted to signify the importance of on-going management after the project has received the go-ahead.

Western Australia was the first State to reach agreement with the Commonwealth on joint assessment procedures. Under this arrangement, where the Commonwealth Minister decides that an EIS is required under the

Federal legislation, guidelines are agreed by the two departments and a combined EIS/ERMP is prepared by the proponent. Public submissions are exchanged and mutual discussions take place during the assessment phase.

In Western Australia, referral to the EPA of a development proposal normally occurs through the Minister for the Environment, but can be initiated by another agency, such as the Town Planning Board or Government departments such as the PWD, SEC or MRD, proposing a development. After initial dicussions with the Department of Conservation and Environment, the proponent normally prepares a Notice Of Intent (NOI). This is a brief document, usually consisting of only a few pages, which describes the project and tries to identify the major environmental impacts.

The NOI is considered by the EPA who decides whether or not an ERMP is required. If the impacts are minor, the Authority may merely recommend certain precautions or conditions without further involvement. When an ERMP is required, the proponent or his consultant liaises with DCE and guidelines are prepared. If an EIS is also required by the Commonwealth, these guidelines include any requirements they consider necessary.

It is important to recognise one difference between the Commonwealth and State requirements. The former dictate that consideration be given to the social impacts of development, whereas the latter do not. This stems from the more limited definition of 'environment' in the WA Environmental Protection Act. A combined EIS/ERMP will therefore cover social impacts, but these will not be assessed in any depth by the EPA.

After the ERMP is prepared, it is advisable for the proponent to have it checked by DCE before printing it and submitting it to the EPA. The EPA considers the document and makes three decisions:

1. Does it adequately deal with all the issues?
2. Should it undergo a public review?
3. If so, what review period should apply?

Most ERMPs do undergo a period of public review which extends from one month to three months, depending on the complexity of the development and likely public response.

The proponent is required to publish the availability of the ERMP in appropriate newspapers and to make copies available for inspection in various locations such libraries, local government offices, etc. Copies are generally also available for purchase at a reasonable price. At the same time, DCE arranges to circulate copies of the ERMP to all Government agencies which are considered to have an interest or responsibility in the project.

There has never been an opportunity for members of the public to make their submissions to the EPA in person, nor has a public inquiry been held by the Authority or any other person as part of an environmental impact assessment. Such inquiries are, of course, time-consuming when a large number of people wish to be heard, nevertheless the opportunity to present their views in person does appear to be favoured by some people. An example was the rationalisation of Jervoise Bay proposal which underwent simultaneous public review by the EPA in respect of its environmental implications, and the MRPA in respect of the planning aspects, in 1978 and 1979.

As a result of publication of the planning proposal by the MRPA and the ERMP by the EPA, 140 submissions were received by the former compared with only 16 for the latter. Yet, of the 140 submissions received by the Planning Authority, 113 were judged to have been objections primarily on environmental grounds. Of the 16 submissions received by the EPA, only 9 were from members of the public and some of those were duplicated to the MRPA. The question must be asked whether so many people chose to make environmental submissions to the Planning Authority rather than the Environmental Authority because there is a right for the public to appear before the MRPA, but not the EPA.

At the conclusion of the review period, the Department prepares an assessment of the departmental and public submissions for the Authority, and also carries out an independent review of the ERMP. The project is normally discussed at a series of EPA meetings and directions are given to briefing officers as to the line that the Authority's report should take. This stage normally takes about two months and may include discussions between the EPA and the proponent, with other departments also involved.

The report and recommendations are then printed and submitted to the Minister for the Environment in accordance with the Act. The Minister is then bound to send it on to the Minister responsible for the original referral. Copies may be supplied to all Members of Cabinet, and the matter may be raised in Cabinet by the Minister responsible for the development or the Minister for the Environment. The Authority seeks approval to publish its report, and this is normally granted when a decision is made by the Government. However, the Authority has no power under its Act to publish its assessment report.

An important factor in the Western Australian assessment procedure is the requirement for a management programme to be prepared and included in the conventional impact statement. Implicit in the ERMP process is the scope to call for monitoring and research while the development proceeds, and for the proponent to be prepared to modify the project in the light of that monitoring and research. It is this ongoing environmental control that sets the WA procedures apart from those adopted in other States. In practice, lack of resources has restricted the EPA or the Department from carrying out much surveillance or testing of a project once development approvals have been given, and the Authority has no power to take any action against the proponent should the project not proceed in accordance with any environmental undertakings that have been given.

SOME IMPORTANT QUESTIONS

Is Legislative Backing Needed?

Most States now have environmental assessment legislation. While striving to maintain flexibility, without being tied down by detailed statutory requirments, most believe legislation assists by confirming government support for environmental impact assessment, spelling out both to the developer and the public what ground rules apply, and ensuring that government agencies carrying out works and private industry are treated equally.

Is the Present Procedure Satisfactory?

The most common formula is similar to that used in WA: namely, some triggering document (Notice Of Intent) followed by a decision to require an ERMP. A document is prepared by the proponent to guidelines drawn up in consultation with DCE, then released for public and departmental comment, and followed by EPA report and recommendations. There are many variations on this theme, the most different is that of Queensland where the EIS is produced through a consultative process between the decision-making authorities, the developer, and other interested groups, including community groups.

When should an ERMP be called for?

Most countries and other States require an EIS to be prepared when options are still open. The main option relates to choice of site or route in the case of roads, pipelines, cables, etc. However, this option is not open in many circumstances, for example, in the case of a confined ore body, port facility or dam site. There may be a need for a two or more stage assessment process, the first when a suitable site or route is chosen, and the second when the project is actually undertaken.

How should Public Involvement be Organised?

If it is accepted that the public should have the right to review the EIS, how should this be achieved? The present method makes the document available for a period decided by the EPA, and written submissions are considered by the Authority in framing up its report and recommendations. This is a common and low-key method of securing a public response to the proposal. Other more sophisticated systems include a right for individuals to present their evidence in person and be questioned on it (as with a parliamentary committee inquiry); for the project to be explained at public meetings or seminars; for a public inquiry to be held (perhaps involving legal representation); and so on.

The Question of Risk

Many developments involve a risk of environmental damage due to some accident or combination of accidents. One has to consider two factors: firstly, the probability of the accident and, secondly, the degree of damage if it occurs. Most factors considered in environmental impact involve either a high probability, but relatively low or manageable impact, or the low probability, but catastrophic accident. Risk analysis has tended to be confined to a few obvious cases such as inflammable or explosive substances manufacture and storage or nuclear installations, but other plants and projects might well be subjected to risk analysis.

Secondary and Social Impacts

Many of the most important impacts are not those that are caused directly by the development itself, but those that result from environmental changes brought about by the development. The classic example is the Aswan High Dam which created a huge storage for irrigation and power generation and greatly reduced downstream flooding. However, the most deleterious effects were not the obvious physical changes themselves, but such secondary effects as the dramatic increase in the disease schistomiasis and the collapse of the sardine industry in the Mediterranean.

The former was caused by the provision of suitable moist conditions for a certain snail which is the host to a blood fluke which causes the disease, and the latter by the trapping of the nutrient load washed down from the Upper Nile in the dam, depriving the Mediterranean of a major nutrient input. The same nutrient load subsequently caused severe eutrophication problems in the dam itself.

Social issues also tend to fall into this category. When the EPA held a public meeting in Karratha as part of its review of the ERMP on the Woodside development, all the questions related to social impacts rather than damage to the natural environment.

Under present legislation, the EPA is not required to take social impacts into account, although it does its best to assess secondary effects. However, the latter are complex and do require considerable expertise and a capacity for intuitive thinking.

Timetables

Most developers are anxious to complete the assessment process quickly, and some legislation provides only limited time for the assessment to be carried out. The risk is that important factors may be overlooked, or questions that require further research or monitoring ignored. The conservation movement, on the other hand, often complains that inadequate time is given for them to assess the ERMP.

A further difficulty arises when time constraints are imposed under other legislation such as the planning or mining Acts. The Victorian Environment Effects Act 1978 deals with this problem in section (8(3)) which states that where a development is required to undergo environment assessment, any date by which a decision has to be made under any other Act shall be read as if that date is one month after receipt of the assessment. This has the effect of nullifying all time constraints imposed under other legislation.

Should environmental legislation include time constraints, or offset time constraints imposed elsewhere, or leave it open as at present?

The Cost-Benefit Approach

The Government's Policy calls for a system of cost-benefit analysis of development schemes which take environmental as well as economic considerations into account.

Many papers have been written on this subject and one is being presented at the Seminar by John Thomas of CSIRO. The most difficult problem is to find an effective way to value a natural resource. The resource at risk may be wildlife - which can involve questions of rareness and importance - landscape or recreational values, or perhaps the most difficult of all - wilderness. In most cases, techniques for putting a monetary value on these resources are questionable or lacking altogether [5], whereas the cost of environmental controls, or marketable resources foregone are easily calculated.

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DISCUSSION

Q. MRS BARBARA CHURCHWARD (Conservation Council of Western Australia)

In your paper, you talk about a full environmental impact statement and you also say that there is automatic right for the public to be involved or infer that there is automatic right for the public to be involved, in Western Australia. I was wondering if perhaps you would explain those developments that fall in the middle zone of requiring more than a Notice Of Intent, but which the Environmental Protection Authority or perhaps your Department (DCE) in consultation with the Authority, does not believe require full environmental impact statements. Perhaps you could explain how you come to that decision. Generally I understand the public is not notified. Do you think there is a place for the public to be notified and how would you see that being included in the scope of amendments to legislation?

A. MR PORTER

I'm going to duck the last question which was how do I think it could be included in legislation, because that's really the purpose of the Seminar-to hear how you think any legislation should be framed up. I'm going to keep my own views to myself. However, in Western Australia, as indeed I think in South Australia and Victoria, there are a whole series of stages in between those which I've defined; some involve public exposure and some don't. We haven't got the legislation, and we don't have the set of different names. For instance, I think South Australia has about eight different types of documents that can be produced depending on whether or not the document goes public or whether it's going through some consultancy process or not. We have been able in Western Australia to adopt a pretty flexible system. Of course it does make you vulnerable. A developer can come along sometimes and say: "Look you know, we must start this tomorrow - we don't have time to go through the process." Now the Environmental Protection Authority has to make a decision as to whether or not it is going to recommend to the Minister, (and remember the EPA can only make recommendations) that a full environmental impact assessment is carried out. Under the present arrangement, the Minister can say no. I'm not suggesting that Ministers do that, but that can happen.

The EPA can call for a limited ERMP and not put it through a public review period. This could be done, for instance, in the case of a defence proposal, where the Commonwealth is proposing a defence exercise which they don't want to go out into the public arena. Industry may be proposing a development and in order to understand the environmental impact of the development, it is necessary to have access to the confidential information associated with processing, which they don't want to go public. In that case the EPA could call for an environmental review and management programme to be prepared, but to have a confidential addendum to it.

At the other extreme, the EPA might believe that the project is of such little signficance to the environment that it doesn't need to go public at all. However, I think it's fair to say, that where the EPA has called for an ERMP it has gone public, to the best of my knowledge, in every case. I cannot recall a case where the EPA has called for an ERMP and not put it through a public review period, although the public review periods in some cases have been relatively short because of pressing time constraints. I think a classic example is the offshore exploration for oil where a drilling rig is available for a very very limited period of time or because, for environmental reasons, it is very important that the drilling operation is undertaken and completed in relation to seasonal factors, such as to get the thing out of the way before the crayfishing season opens, or something of that sort.

So there are a whole range of determining factors on which the EPA has complete flexibility to make up its mind. Once you move to legislation, unless you go the way the South Australians have done, there is a possibility that the flexibility will be reduced. On the other hand, you can argue that the public interest would be better safeguarded.

Agreement Acts and Environmental Assessment

Mr. Stuart Hohnen
Co-ordinator, Department of Resources Development

INTRODUCTION

While procedures for environmental impact assessment and evaluation are currently non-statutory in Western Australia, Ministers are required to bring to the attention of the Environmental Protection Authority, any project which might have a detrimental effect on the environment. This ensures that projects are brought to the attention of the EPA, which can then call for a formal Notice Of Intent, followed by a full ERMP as necessary. It could be said, therefore, that the informal procedures in Western Australia have some statutory basis.

The environmental impact assessment and management procedures for recent major development projects are, however, fully defined in the special Agreement Acts covering individual major projects.

THE AGREEMENT ACTS

There are a total of sixty-four Agreement Acts administered by the Minister for Economic Development and Technology, most of which relate to resource development. They range in time from the Iron and Steel Industry Act of 1947, to the Diamond (Ashton Joint Venture) Agreement Act of 1981.

The Agreement Acts have a number of purposes, as follows:

- to define the deal between Government and the developer;
- to provide a mechanism whereby existing statutes can be amended for a specific project;
- to provide a mechanism for co-ordinating Government's interaction with a specific project;
- to provide a secure package to the developer to assist in financing and marketing;
- to allow public debate over the details of an agreement between Government (and its various arms) and a major developer;
- to help expedite the process of approval and development.

In summary, Agreements provide a vehicle whereby the special characteristics or requirements of a project can be provided for.

It is important to realise that the ratification of an Agreement does not give approval for a project to proceed. It provides a framework for the submission of detailed proposals; for responses by Government within a certain time frame; and for arbitration of any disputes which arise.

Agreements, therefore, provide a <u>flexible approach</u> to negotiation of terms and conditions for a major resource development. However, once ratified by parliament, an Agreement is <u>binding</u>, unless varied and amended by Parliamentary procedures.

As several Agreements can be negotiated in the course of a year and experience is gained in the effectiveness of various provisions, there is the opportunity for continual modification and improvement. For example:

- clauses relating to local content requirement have become more specific and more readily enforceable;
- the proposals mechanism has become wider ranging, covering virtually every aspect;
- environmental clauses have been strengthened by a requirement for detailed environmental management programmes to be included in the formal proposals as well as a requirement to monitor and report.

THE PROPOSALS MECHANISM

Agreements are normally negotiated when the developer has undertaken sufficient investigations to convince Government that the proposed project is likely to be viable; however, in many cases the process of investigation would not normally have reached the detailed design stage when an Agreement is negotiated. The developer is therefore required to present formal proposals to Government for approval when design details are known. For example, the Argyle Agreement requires the developer to present proposals for:

- marketing;
- mining and recovery of diamonds, including plant facilities and security measures;
- roads;
- townsite, town, housing, utilities and services, and associated facilities;
- water and power supply;
- airstrip;
- other works and services;
- use of local professional services, labour, materials, training of employees;
- leases, licences;
- an environmental management programme.

These proposals are referred to relevant agencies for assessment and comment. They require the approval of the Minister responsible for the administration of the Agreement, before the project can proceed. Government can seek changes to the proposals, and the Agreement provides for a process of arbitration for the settlement of disputes. There is also provision for submission of additional proposals if circumstances change significantly during the life of the project.

Specific clauses of the Agreement spell out in detail the basis for consideration of individual proposals.

ENVIRONMENTAL ASPECTS OF AGREEMENT ACTS

State Agreements serve to reinforce the process of environmental assessment and ongoing management for major projects. They do not affect the requirement for a developer to go through the standard environmental assessment process of:

- Notice Of Intent;
- ERMP (if required by EPA);
- public comment (if required);
- EPA assessment and advice;

before obtaining approval for the project to proceed on environmental grounds.

In recent years, special requirements relating to environmental assessment and management have been built into the Agreement Acts to supplement the ERMP process. These special requirements can vary from Agreement to Agreement; however, the current approach is quite well illustrated by the Ashton Diamond Agreement, the most recent negotiated. The operative sections are as follows:

- presentation of proposals for an environmental management programme as to measures to be taken for the protection and management of the environment;
- a continuous programme of investigation and research including monitoring and the study of sample areas to ascertain the effectiveness of measures as approved for rehabilitation and the protection and management of the environment;
- submission of annual reports and additional proposals in the form of triennial detailed reports for the protection and management of the environment;
- a long standing section ensuring that the Agreement does not exempt the developer from compliance with State laws relating to environmental protection either now or in the future.

In most cases, the proposals for environmental management will involve a restatement of material from the ERMP, but in certain circumstances, more detail can be called for. This provides the opportunity for additional information obtained between the time of preparing the ERMP, and the time of completing detailed design (which can be a considerable period in the case of major projects such as the North West Shelf Gas project) to be taken into consideration.

Of perhaps greater importance is the framework established for ongoing research, monitoring and reporting which has been built into recent Agreement Acts, and which substantially strengthens the position of the Government to ensure effective ongoing management of environmental impacts.

These ongoing management requirements have led to special administrative arrangements being established within Government to ensure monitoring and control of rehabilitation activities for the bauxite, mineral sands, and coal mining industries in Western Australia. Committees with representation from all relevant Government agencies, have been established to ensure effective ongoing management in each of these areas.

DISCUSSION

Q. (Unidentified).

I'm anxious to know the status of the older industry Agreements, for example the older Cockburn Industrial Agreements.

A. MR. HOHNEN.

Yes, I think the particular one that gets major exposure is the Laporte Agreement where, in a statutory arrangement, the State took responsibility for disposal of effluent. That is enshrined in an Act of Parliament and we are required to deal with it on that basis. I might emphasise that the arrangement was reached in 1961, many years before environmental awareness got to the point at which it is today. The Laporte situation is receiving a great deal of attention by various people within government and also with the company at the present time.

Q. (Unidentified).

If I could just ask one quick question. In the Argyle Diamond Project is it intended that the annual management reports be made public, so do you think that in the future we can expect that these reports will be made public if developments are enshrined in Agreement Acts?

A. MR. HOHNEN.

The reporting arrangements are for a yearly interim report and a three yearly detailed report. I recollect that the three yearly reports have been made available for those who wish to review them at the Department of Conservation and Environment. I think it was decided that the interim reports wouldn't be made public but the detailed three yearly reports would and I would envisage that process continuing for Argyle. It's true for Alcoa's developments, it's true, I believe, for the Mineral Sands developments at Eneabba and for some of the others.

Q. (Unidentified).

Will you be negotiating with developers of agricultural land in the mallee country and supervising management of this area?

A. MR. HOHNEN.

I'm afraid I'll have to sidestep that particular question. Developers in the context in which I've been talking are the major mining and processing developments. I have nothing to do with the arrangements for assessing the clearing of broad acres for agriculture. Somebody else may be able to answer that question for you.

Proponents Viewpoint 1. Land-Use Developments

Mr. Laurie Humphry
General Manager, Parrys Esplanade Pty. Ltd.

INTRODUCTION

Unless the State Government is prepared to act immediately and introduce a right of appeal against negative decisions by local authorities, land use developments will continue to be restricted and initiatives by developers to introduce rather more sophisticated and quality world standard land uses will diminish.

The current approval processes require a developer and the government to outlay huge amounts of capital on research and planning with no commitment or guarantee that the first basic land use step, namely zoning, will even be initiated, let alone approved by a local authority.

As a developer, I am beginning to consider that the process of environmental impact assessment and procedures is an expenditure that is hardly warranted and I would be better advised to employ my company's funds in public advice campaigns, than in establishing scientific qualification for correct land uses in their relationship to the environment.

There is something very wrong with a system that requires a developer to be prepared to put at risk at least 1 million dollars to sustain himself if he wishes to embark upon a development such as a canal estate. The statutory procedures for canal estates, adopted in March 1981 place a developer in such a position, and the developer is not the only one spending.

The Government, through the Department of Conservation and Environment is heavily involved. As co-ordinator it calls upon many government agencies for expert advice and comment - advice and comment that is collated and represented through the Environmental Protection Authority report which is currently only for the benefit of a Government Minister who has no power of influence with the decision-making process of a local authority.

It is a ludicrous situation that allows a developer to complete all of the research, prepare an environmental review and management programme, satisfy the Environmental Protection Authority (or in a sense the Environmental Court) that a project for land use is environmentally suitable and sound, and then proceed to prepare detailed engineering plans when a local authority can then refuse the rezoning application and not be held accountable for its action.

There is no right of appeal.

There is no means of reference to a tribunal to consider both sides of the story.

The Minister responsible is precluded from becoming involved and this fact alone must surely question the whole role of the requirement for the function of environmental impact assessment and procedures.

I question the right of a Government authority to demand expenditure to prove a project is acceptable environmentally when the authority has no power to influence the development proceeding, that is no power in a positive sense.

On the other hand if the authority reports in a negative sense you can be sure that a Local Authority would use the report to substantiate the reason why a project should not proceed.

PLANNING AND ENVIRONMENTAL ASSESSMENT

The whole problem with the current system is the lack of a totally co-ordinated stepped approval process bringing together the environmental, engineering, planning and other disciplines under one Authority which has the power to approve or refuse a development-that is, a system that not only adequately protects Government and Local Government, but also offers the developer similar protection. And a right of appeal would be included in any legislation that initiated such an authority. The present system isolates environmental matters as if the role is unrelated to the other planning process.

As developers we need to be confident that in complying with the conditions laid down by authorities such as Government Departments, and that our considerable amounts of risk capital and time expenditure associated with exceptional land use developments is not wasted. It is difficult enough today to bring a project to finality in a given time frame that can cope with continually changing economic conditions without having unrelated and uncertain governmental processes. For this reason it would seem essential that legislation or regulations should be introduced to link the environmental research with a stepped approval process into which is also written a right of appeal to an independent arbitrator. And I say legislation in this instance to effectively link the whole decision making process associated wih proposed land use developments.

Lets examine the role of the Local Authority in the current system. As you would all be aware in today's changing society, the pressure that can be brought to bear at local government level is highly political and the demands put upon the local councillors by individuals acting in groups often distort the issue under consideration. No longer is it a simple matter of decision on the merit or otherwise of a particulr project. Rather all other unrelated matters are brought into the debate, and local councillors are often forced into making a decision that has little to do with a true assessment of a proposed land use development project.

If an appeal system existed the councillors could use the system to political advantage with the knowledge that the ulimate responsiblity would lie with an independent arbitrator who would be less vulnerable to local pressures. It is well known that the passing of the buck applies with development applications where such appeal provisions already exist.

With respect to the current isolation of the Local Authority from the evironmental impact assessment process, some of you may well say that the Local Authority is included in the environment impact assessment and procedures and the public do have the opportunity to be involved through submission of argument to the EPA. This is true, but the Local Authority is not involved early enought in a firm commital capacity if it is going to continue to be the sole judge without right of appeal.

A stepped process that requires approval commitments along the way would be a guarantee that the developer is not on a never-ending time frame that could well end up with him having to start again at the beginning.

To illustrate that let me take the position of my company in its efforts to present a land use development in Mandurah.

CASE STUDY: HALLS HEAD ESTATE, MANDURAH

A multi-million dollar development now languishes for the precise causes about which I have been speaking, and which now urges the present Government to act responsibly and introduce an amendment to the current system by having the opportunity for an independent arbitrator to become involved.

In 1977, Parrys' Esplanade acquired some 1100 hectares of land at Mandurah and began to create a prestige housing area which is known today as Halls Head Estates. I would be disappointed with our advertising people if there was a person here who hadn't heard of Halls Head. Before a developer acquires lands a considerable number of appraisals take place and you can imagine that these appraisals relate essentially to the use of the land in its relationship to return on invested capital.

Time is of the essence in every contract. Requirements of community-geographic aspects of the land - the nature of the town e.g. is it industrial or tourist oriented in its current stage, are all important considerations.

We then engaged one of the States leading professional planners with the brief to develop a unique concept for our land use, that would have the effect of attracting people to the area.

We wanted to ensure the very best use for our lands and our briefs encompassed a complete overview of the region, its needs, its lifestyle, its special geographic features.

No expense was spared. We journied with our planners to various parts of the world and from these experiences the planning concepts were established - concepts that we believe will carry the town of Mandurah to become the premier resort town in Western Australia, if not the whole of Australia. Our concept for the future was generally accepted by the Shire, and as a result of our advertising and promotion it was not long before an influx of new citizens to the town began to occur.

Newspapers reported boom times and recorded that Mandurah was close to being Australia's fastest growing town. By 1981 the land at Halls Head had 600 blocks sold and 200 new homes had been built or were nearing completion.

We now have over 1000 lots sold and some 350 homes constructed. It is easy to understand really because Mandurah offers a very appealing lifestyle.

Mandurah is in fact central to extensive employment pools; it is 25 minutes from Kwinana, home of industry, 15 minutes to Alcoa at Pinjarra and only 45 minutes to the heart of the State's major port of Fremantle.

It is central to an expanding employment market potential and offers residents attractions which are hard to better - the ocean, the vast inland waterways, the fishing, the crabbing, swimming beaches, climate and growing facilities that help create the lifestyle being sought by many.

The 'Western Mail' newspaper in May 1981 reported on the Halls Head Development as follows:

> "The whole concept is one which has been planned with forethought and foresight and has succeeded in blending with existing historical landmarks and established residential areas."

I would like to say at this juncture that when the concept of our waterways canal development was included on our concept plan it was well received by the Local Council and residents generally, subject to it being proven as environmentally acceptable. In fact a note to this effect was included in the recently advertised new town planning scheme for Mandurah.

For those of you who do not know, the waterways development will occupy the land currently known as the Sutton Farm which is directly opposite the Mandurah Bridge as you cross over to go through to Bunbury. The land occupied by the farm, some 130 hectares, will see 46% of it excavated to provide waterways for use by the public and residents of the proposed new dwellings.

It is a concept that will be unique in Australia and is similar to the already famous Port Grimaud tourist town situated on the Mediterranean coast of France and that of Huntington Harbour, North of San Francisco on the west coast of U.S.A.

CANAL DEVELOPMENT GUIDELINES

Then came the first obstacle to our proposal: the State Government placed a moratorium on canal developments in W.A. A Steering Committee, headed by the Chairman of the Waterways Commission was set up with the assistance of the Department of Conservation and the Environment to prepare a report for the State Government. New guidelines were approved by the Cabinet to apply to canal development and the media reported in August 1981.

> "Multi-million dollar projects can now go ahead in W.A. because of a State Cabinet decision to lift a ban on canal developments".

My company completed an introductory planning report and lodged it with the Shire Council who in turn sought the advice and comments of the Town Planning Board. At that time the Council did not oppose the project. We commenced liasion with DCE for guidelines to allow us to complete an ERMP.

The ERMP was completed in six months and the statutory advertising period for public participation was entered into. In December 1982, which was 12 months since the lodgement of the draft ERMP, the Environmental Protection Authority released its report generally giving the project the green light, but subject to complying with some 32 conditions.

My company accepted the conditions, considering they were fair and reasonable to ensure the safeguards to the environment, and were jubilant that at last the project would proceed and become a reality. We were now two-thirds of the way through the statutory process.

To get underway, we applied to the Local Authority for a rezoning approval and were confident that with all the criteria sanctioned and endorsed by all of the parties with the necessary qualifications to assess such a project, this would be only a matter of course.

How wrong we were. The Council rejected our application in April 1983. The comment from the various Councillors was wide and varied. No specific reasons were given for the rejection by the discussion before the vote was taken evidenced that the Councillors were not satisfied with the recommendations of the EPA report. In fact the credibility of the EPA was questioned in the same manner as it had been doubted by the Chairman of another Government Authority at a special meeting the Council had held two weeks earlier to examine the EPA report. You might like to consider how we, the developer, felt at this crucial stage of the decision-making process with hundreds of thousands of dollars expended, time lost in complying with every condition that we had been asked to meet, to discover that the EPA and all of the Government's expert assessments in matters technical and pertaining to the effect the project would have on the environment are not acceptable to the laymen that make up the Council of the Local Authority. But the rejection was final.

A subsequent attempt to further discuss with the Council their decision was rejected for a stautory three months.

There is no right of appeal.

If we wish to develop this unique concept we must begin by persuading the Council that the EPA is credible that the plan is worthwhile, and that it will prove to be of benefit to the citizens and the town of Mandurah. For you see a very vocal minority group with no qualifications to assess the project environmentally has successfully persuaded the Council that ERMPs mean nothing.

Consider our expenditure to date - $400,000; consider the time and expenditures by the respective Government Departments. Consider the advice given by the Environmental Protection Authority to the Minister for Employment, Planning and Administrative Services that the project is sound and can proceed. What of the moratorium that held up three canal projects worth hundreds of million of dollars for some twelve months to lay down procedures? It would seem that it has all been to no avail.

What of the actions of the current Local Council?

To their credit they invited the EPA to address them and qualify the report to the Minister in favour of the development. This invitation could not be met - the EPA only report to a Minister of Government and absolutely to no one else - Local Authorities included. Instead a special meeting was arranged with the kind consent of the Director of the Department of Conservation and Environment as one of the guest speakers. He could not speak on behalf of the EPA but was prepared to answer technical questions associated with our ERMP and the subsequent EPA report.

The Town Planning Minister was unable to attend but set the Commissioner of Town Planning as his representative.

He advised the councillors that the developers had done all that they were required to do under the legislation, that they had met every condition that Council had asked and that they were prepared to meet the special requirements as detailed in the EPA report. And it was really a question of canals or no canals. Councils change. No one knows that better than I. It is important that one recognises that Councils change. The Local Authority continues but the decision-makers on policy, that is, the councillors, change.

In the 4 years since we first decided to build the waterways project the Council has changed dramatically. Only one councillor out of the original nine had remained in office and he promptly declared an interest in another development and declined to consider our project.

The attitudes and policies of the present council are foreign to those that existed 4 years ago.

In the process of change in Governments there is generally some consistency that prevails. One would presume that this would also be the case in Local Government but our experience has shown this not to be the case.

If an incremental approval process in terms of obtaining approvals for canals been introduced, and tied to the planning process and co-ordinated by the Town Planning Board, then we would probably not be in the position we are today.

The environmental assessment process must be treated seriously and included in a similar way to all other planning processes.

The commitment of final approval to zoning (subject to environmental, engineering and planning assessment) must be given much earlier in the statutory process and must not be subject to the whims of changing Councils during the lengthy approval process.

In our instance, it seems as if the Council had said, ERMP reports are fine things to satisfy the EPA who report to a Government Minister who is responsible for an area of Governmental concern, but that is of no concern to us.

We are not convinced that the special conditions laid down by the best experts in the State for the successful development of canals are reliable enough.

This attitude cannot be challenged: not even by the Government elected by the people.

I wonder sometimes how the Government experts that have assessed our proposal must feel about the assessment of their work, and I wonder how the Government must feel when under the present Act they are able to incur such enormous expenses to the developer and to themselves to require an environmental impact and assessment procedure to be undertaken and then be placed in a position of being unable to challenge a decision made by the Council of a Local Authority.

CONCLUSIONS

I wish to thank you for inviting me to speak to you today at this Public Seminar, and in closing wish to summarize what I have been trying to demonstrate.

When my company first commenced the waterways project at Mandurah we were dealing with a Council that indicated that it did not oppose the concept plan for water-based developments and saw some merit in proceeding to the detailed environmental and engineering study stages.

The new Town Planning Scheme was likely to be the mechanism that would facilitate water based developments.

Attitudes changed within the Local Council, and now we must begin again. But our first step in the process will not be to examine the effect on the environment but rather the effect on the public and more importantly, on those responsible for the decision to initiate the zoning process.

If the Environmental Protection Act is to be reviewed constructively then the first step must evaluate the objectives and reasons for the Act and how it is associated in the overall scheme of things.

The second would be to ensure that the Minister responsible was included in all facits of its administration and where lack of co-ordination exists in how the Act relates to the Town Planning process as it applies to land-use developments, amendments would be initiated.

It's just not good enough to say to a developer: "Comply with our requirements and then you can have a go at the Town Planning approval process" when the Town Planning Department has no line of authority in terms of initiating rezoning applications. In other words, the Local Authority is the sole judge in these matters with no right of appeal. It is high time this was reviewed.

Why not make the Town Planning Board responsible for the total co-ordination of the process?

After all, <u>it</u> is the Planning Authority, and environmental assessment is very much part and parcel of the planning process.

Time-frames are extremely important considerations in land use developments since economics in the market place determine profitability.

The fact that the EPA is not accessible to the public is something that should be clarified. The question can reasonably be asked in this instance "why was it necessary to even involve an Authority who's job it is to report to a Minister of Government, when that Minister of Government has no power in the decision-making process and is not included through right of appeal in the Act which he is responsible for administering?"

Finally I will say it again. It is an absolutely ludicrous process that requires a developer to complete all of the research, prepare an environmental review and management programme, satisfy the Environmental Protection Authority that a project for land use is environmentally sound, when a Local Authority can then refuse the rezoning application and not be held accountable for its action because there is no right of appeal - no reference to a tribunal for consideration of both sides of the story.

Carrying out ERMPs without a locked-in process of planning that clears, in logical sequence, procedures for land use developments to proceed from the very first approaches to the Local Authority to the completion with inbuilt rights of appeals against decisions, is a complete an utter waste of money and time: time and money to the developer, Government agencies,

and hence the public of Western Australia. Who in these economic-restraint times is able to afford either? May I say when we eventually do gain the approval of the Local Authority to our water based land use development at Mandurah, I simply hope and pray that the attitude of the EPA will not have changed with time.

DISCUSSION

Q. DR. SYD SHEA (Mandurah Shire Councillor)

I am responding to Laurie's very forceful speech in my capacity as a member of the Local Authority to which he referred. I might say from the outset that I am not unsympathetic with many of the points that he has made. Nonetheless, it probably is appropriate to put the point of view from Local Government, particularly in relation to this project. Laurie suggested that he should have spent the money that he spent on the technical side on a public relations campaign. I think I've suggested to him and his company that perhaps he should have done both. It was extremely naive and inept not to communicate properly to the people of Mandurah the results of their excellent study of the technical side of the issue relating to canal development in Mandurah.

I think what has come out very clearly in Council's considerations is the difficulty of evaluating very technical issues. Certainly, as a scientist myself, I reject the right of laymen to comment on the professional integrity or competence of the type of people that Laurie's company engage. Nonetheless, when the Council was confronted with the report and the EPA's report, it was quite obvious even to the most innocent of the Councillors that there were many value judgements in the technical side. While we couldn't talk about the hydraulic engineering concepts, it certainly was within our right, we believe, to make a value judgement.

On the socio-economic ones which ultimately were the ones with which Council was confronted, when we make a decision for Mandurah as Councillors, we have the responsibility to make a decision which reflects the greatest good for the greatest number of people for Mandurah. That is in conflict maybe with the greatest good for the greatest number of people in the State of Western Australia and I think we may have to resolve that question along the lines that Laurie has suggested.

A. MR. LAURIE HUMPHRY

I think Dr. Shea has touched on quite a few points that were made in my talk. I think the problem that I was trying to illustrate was that Councils do change. With the first Council with which we were dealing we found it wasn't necessary to try and convince them of the social issues; with the second Council we are finding that a problem. So, to say that we were inept in the first instance, is probably a little bit unfair, because we did get acceptance by the Council. Certainly they didn't oppose it. What I'm really trying to say is that because that first Council accepted the project, we shouldn't have to go back and go through a second Council. There must be a very early commitment, a firm commitment, by the Council when we first lodge our applications.

Q. MR. BOB CAMERON

Thank goodness that laymen have some say in decision-making and let's hope that your advocating that these things be put in the hands of specialists doesn't ever really come about. What you are saying is let's get away from grass roots government which is Local Government where people feel they have some influence on the people they elect in planning their own town. It is significant to me that of those nine who decided in favour early, eight of them have been replaced and maybe the people of Mandurah did that for a purpose. I'm just saying, let's stick with grass roots Government and let the people of Mandurah kick out those lousy councillors who aren't approving this plan and then you can get it through if they want it.

A. MR. LAURIE HUMPHRY

Well I think that's probably fair comment. Again, I go back to the point though, that before they send us off to spend $400,000 worth of research, surely the Council should take up the issue at square one and that first Council elected to allow the project to proceed, provided it was environmentally safe. Whether they were tossed out eventually because of that particular project, I very much doubt and I have a feeling that you may find that three or four councillors may resign or get out of the system in the next six to nine months so the ball game will change again. I'm just saying that it's an intolerble situation.

Proponents Viewpoint 2. Industry

Mr. Eugene O'Callaghan
Confederation of W.A. Industry Inc

INTRODUCTION

When we were invited to speak at this Public Seminar, the main reasons given for the meeting were to receive constructive comments while the Government is reviewing the Environmental Protection Act; with the indicated possibility that the new Act might include provisions for statutory assessment procedures!

Wow! And this is the 194th Anniversary of Bastille Day, the day that set in train the French Revolution, when the suppressed Frenchmen stormed the Bastille castle fortification of Paris and slaughtered and burned all before them.

I hope there are no portents in this, and it's good that we can all be here for a meagre cost of $5.00, with lunch and goodies all thrown in - though I'm not so sure what the performers think, at such a modest cost of their entertainment!

I represent industry but I speak as a dedicated Australian who has been gravely troubled by the erosion of incentive and scope for enterprising risk-takers to do creative and productive things.

But we should all take heart and renewed enthusiasm from the spirit of the Prime Minister's recent Economic Summit, and the purposeful meeting of the minds that flowed from it. I trust that we can all agree that nothing at this seminar should conflict with the aims and objectives which flowed from that Summit.

Let me list the principal issues of concern and rumoured proposals that have been flowing into "Confederation House" from knowledgeable people who are aware and very concerned that Cabinet and the Department should be tempted to overreact to the doubtful substance of the pressures they may feel to be on them, remembering our Premier's commitment that "W.A. will lead Australia into economic recovery"; and we must also remember that there is no room to mistake "over-protective activity" for meaningful "accomplishment"!

MAIN ISSUES

If I list the issues and rumoured proposals quickly, I will then go back over them and comment on each one (drawing reference also from Colin Porter's paper) and trust that from this the Department will get the "feedback" from industry which it seeks.

1. That this July 14th Seminar is a public stage-showing of DCE problems and pressures aimed at endorsing amendments and changes to the Act that have already been drafted. I really can't believe this and I'll tell you why later.

2. To put some new form of "teeth" or, some say, "iron bars" into the Act.

3. That the new legislation will be more restrictive, more comprehensive and cover more broadly-defined definitions of "environment" such as social, cultural and economic factors.

4. To give DCE the authority to take over all pollution control, and the licensing of all discharges into the environment including, I fear to think, smells.

5. The introduction of more formal or even statutory environmental assessment procedures - and remember, with whatever is the broader definition of environment.

6. To provide for full public enquiries, public participation and media publication of each individual ERMP.

7. That the Minister and Cabinet be obliged to accept the EPA advice.

8. That the composition of the EPA. be re-structured and include representation of executive members of DCE.

To enterprising industrialists,some of these issues are more than just a bit chilling. Yet here we are as a young nation of people, trying to facilitate development and job opportunities, and to lubricate the means for achieving it. We can all be thankful that, generally speaking, industry and Government share a common philosophy: nobody wants to see their signature written on any action of ravaging the environment.

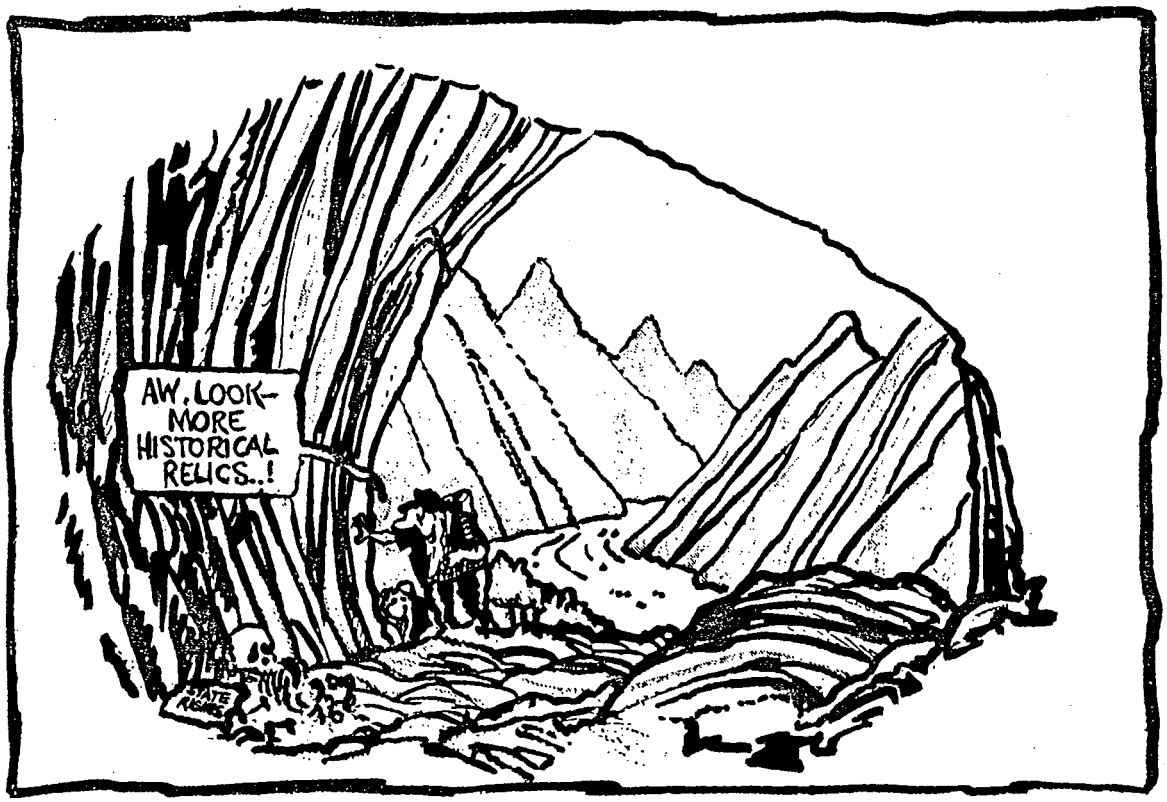
Consequently, we really don't believe that any of the more radical content of these issues will happen; and to this end we are gratified by the Minister's undertaking as endorsed by the Premier, that reviewing of the Act and drafting of amendments on agreed modifications will be done in direct consultation with industry.

We recognise that these pressures on a young enterprising Government are unfair. It's difficult to imagine from what mixture of power-minded individuals they come. Francis Bacon once said "Nothing more doth hurt in a State, than that cunning men should pass for wise"!

GOALS FOR THE FUTURE

What we are talking about is for the good of Australians, in particular West Australians, their rights and their future.

Malcolm Muggeridge once put it "Caring for our precious possessions".

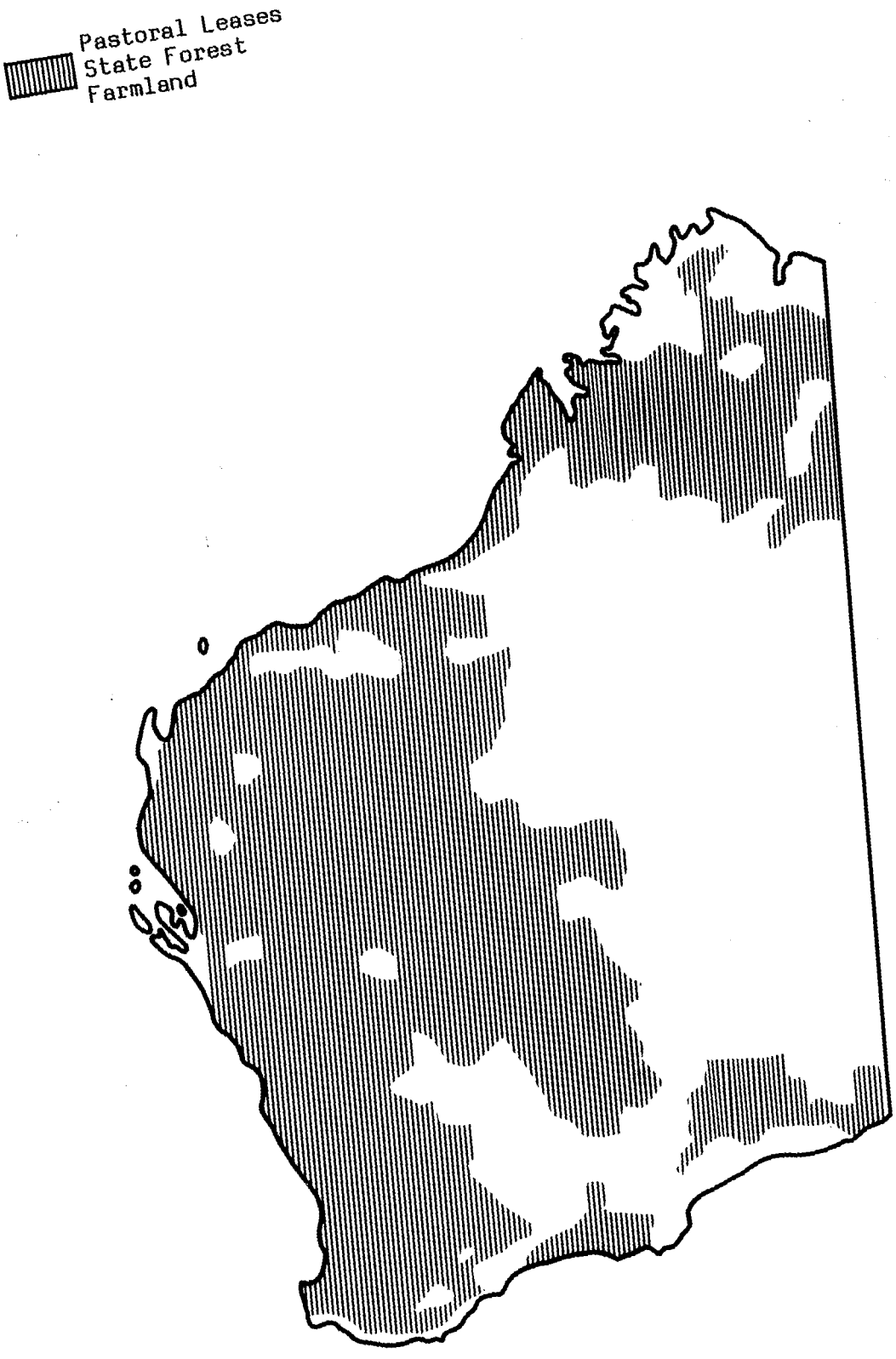


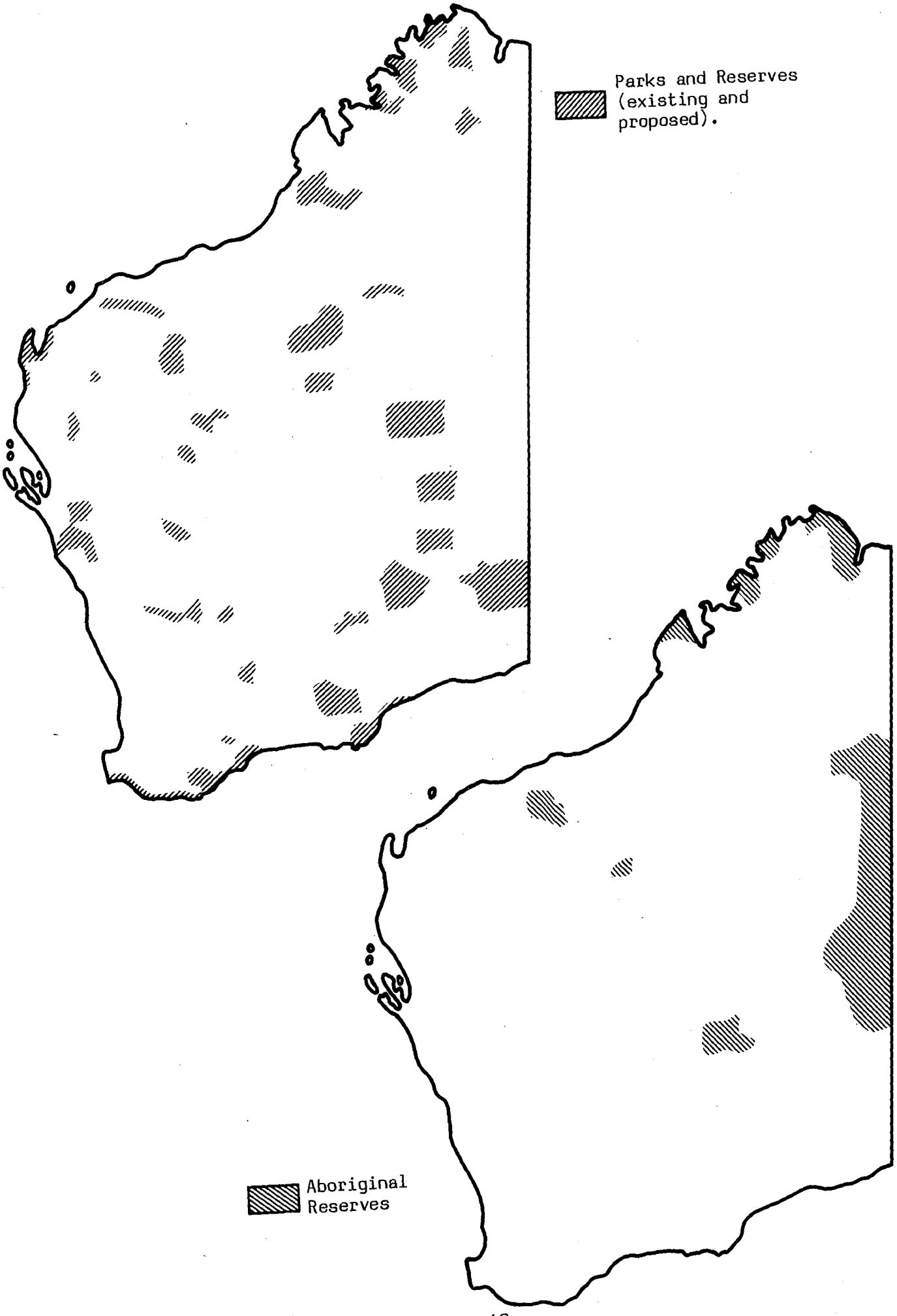
To do this we need to have common goals and fundamental aims that thread their ingredients through the actions we take in attempting this, and I'm sure we can all agree that to these basic aims we all need to be positively committed:

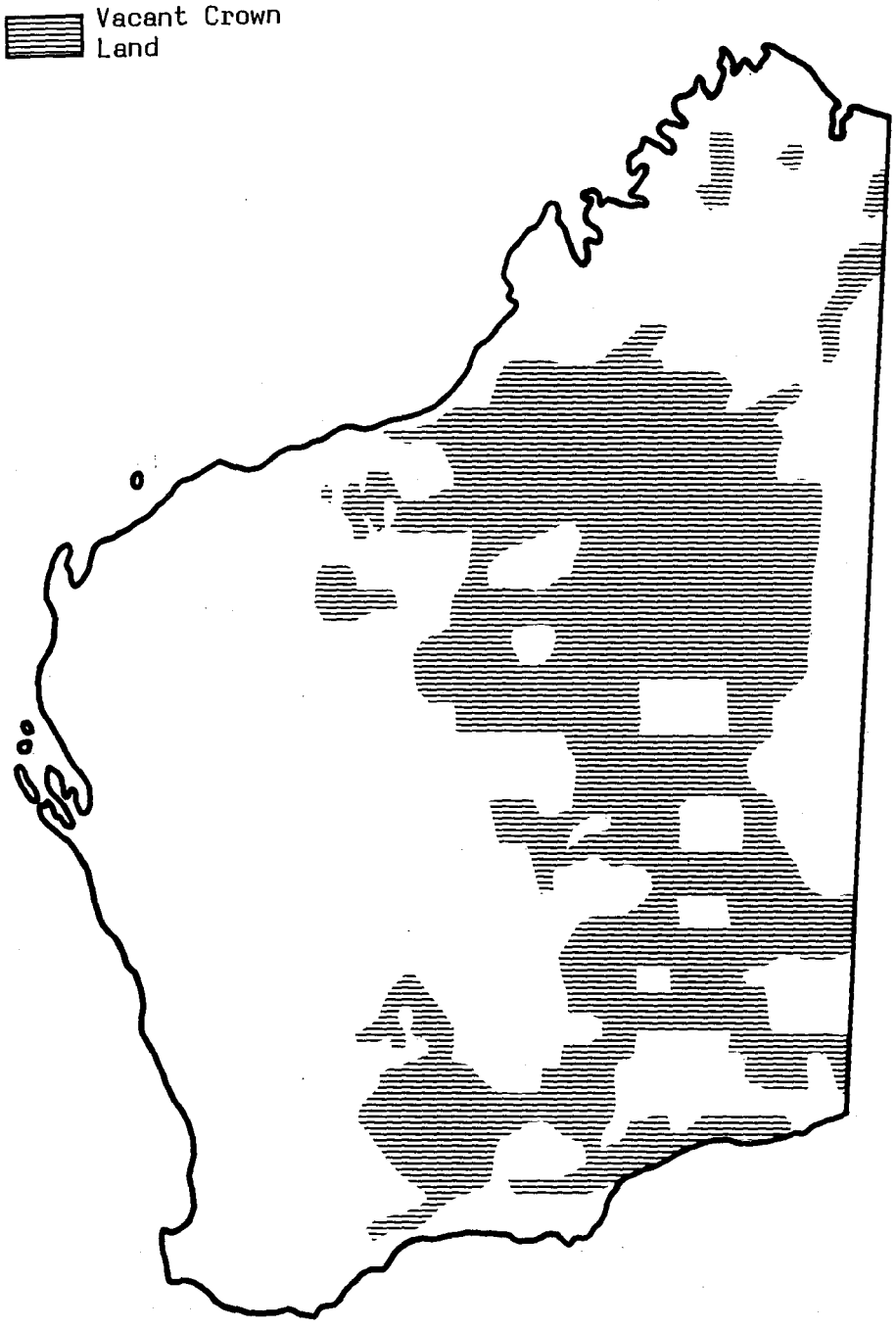
- to preserving and enhancing this country's standard of living;
- to the provision of a secure base for gainful productive employment of our workforce, especially our youth;
- to furthering the development and creation of pride in our country, its history and its future;

if we are going to talk about this subject in a responsible and balanced way.

Let us take a look at Western Australia and its indicated areas of land tenure and use.


Pastoral Leases
State Forest
Farmland


Parks and Reserves
(existing and
proposed).
Aboriginal
Reserves



Note the "wilderness" areas.

In planning the efficient utilisation of our resources, due weight must be given to the relative economic importance of each component resource, and the need to preserve certain features of the natural environment. With so few people, so much of our hinterland fits into the category of "wilderness" and we need to take care that the zealots of "wilderness" don't move in to sterilise the resources and the job opportunities that it may well hold for mankind. W.A. is just so much at the very threshold of its development and we must be prepared to develop the use of our knowledge, not of our fears!

I wonder why we feel the need to say that there is an increasing capacity for large projects to adversely affect the environment any more than fast cars can kill more people, or why do we imply that there is a stark justification for concern by academics and Government scientists, for lack of consideration by large projects, to the social and environmental effects which flow from them?

From what sort of isolation can it be that such unused and unproductive brilliance exists - that professional managers with such a tremendous accountability for shareholders' funds, would intentionally ignore the full range of responsible opportunities that could further improve the success of their enterprise in perpetuity?

Let us be frank, nobody has got a 100% monopoly on such brilliance, but why do we have to take the great risk of treating initiative and enterprise almost as a crime in the making, to be brutally subdued by those kind of secluded people, instead of being dynamically encouraged into the right channels.

INDUSTRY AND THE ENVIRONMENT

I ask you to think deeply about the justice for these destructive assertions to be made about major industries.

What great errors have they made that have caused irreversible damage to the environment that brings cause for renewed threats of rigidifying still further the progress of getting a worthwhile project off the ground?

Such people mutter and chatter about what our major industries might do but let us check the track record a bit!

- B.H.P. haven't covered Kwinana Beach with slag;
- Alcoa haven't spread alumina all over Naval Base;
- and a quick review of the much-maligned Laporte effluent discharge area - 20 years ago and just 3 days ago shows what little change has happened, either to the vegetation of the dunes or to the discolouration of the beach. And the crabbing was a record this past year.

We need to bear in mind that these kinds of assaults on enterprise are an assault on the means by which productive businesses grow and the reasons for them to grow and to give new opportunities for employing people.

I earnestly fear that maybe we have too many people feeding off the fruits of enterprising progress, who ignore the heartbreaking sadness of those who want to work and who can't get a job!

ENVIRONMENTAL LEGISLATION

Let us go back to the issues referred to earlier.

Some people are pressurising the Government that there are "no teeth" in the present Act. If this is so, how can it be that so many publicly accountable organisations have spent millions of dollars assembling environmental information for impact studies and management programmes, in co-operating with the requirements of an Act that hasn't got "teeth".

If it has no compelling "bite" how is it that Government auditors approved the expenditure of $875,000 on environmental studies of the Cape Peron waste water outfall pipeline or the $1 million on the Fortescue Dam environmental studies apart from the millions of dollars of shareholders' funds spent on similar studies for productive enterprise projects.

Sure there may not be detailed penal provisions, but the compelling effects of not complying with the range of "administrative guidance" demands which can be invoked when thought to be necessary under the present Act, are daunting. The desirable fact is that this situation does preserve the cornerstones for responsible co-operation and communication that practical experience has shown to be so necessary in getting projects off the ground.

The next issue is whether or not new legislation is required to provide for a wider range of limitations and a broader definition of "environment" to include physical, social or cultural, and economic factors.

Why do we have such a terrible tendency to avoid the simplicities that make things work?

One might be excused for thinking that Australia has some inordinate franchise to get the most out of world markets for any products that result from our exploration or development - that international trading doesn't need finesse or commonsense guile in order to win for Australia the maximum rewards for its products.

Back in 1966/67, we all became enormously proud of W.M.C.'s achievements in breaking into the "closed shop" of world nickel trading operated by INCO, Falconbridge and several others. In 1966, W.M.C. discovered Kambalda, and 18 months later, in August 1967, the first sale of nickel concentrates was shipped out of Esperance.

In 1969 the nickel metal refinery was opened and in 1971 the Kalgoorlie smelter was commissioned, and as a result of all this, Australia now has something like a 15% share of the world nickel market with each of Kambalda, Kalgoorlie and Kwinana developments reflecting a milestone in the achivement of environmental harmony.

This was done with careful and co-ordinated consultation between W.M.C. and two Government Departments, back in 1966.

Now, the same company, in striving to develop the enormous potential of the great Roxby Downs project over the border in South Australia, is labouring under the burden of dealing with 21 Government Departments.

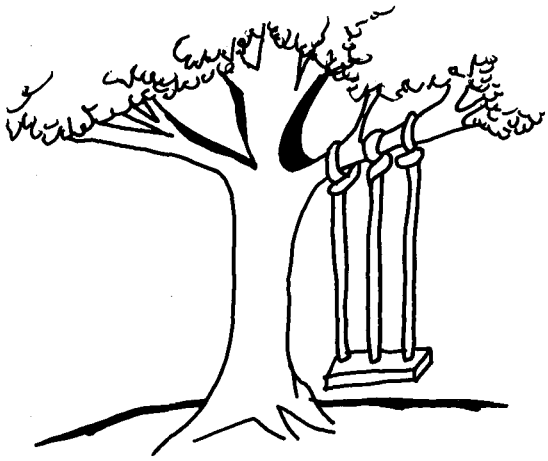
Surely, if we are going to make sensible progress towards sound recovery, we need to avoid that kind of meddlesome interference, bungling bureaucracy and the dead weight of unproductive costs which this represents.

In the interests of balanced Australian progress I don't think there is a case to support the view that our present Act needs to be made more comprehensive or that it needs statutory stiffening.

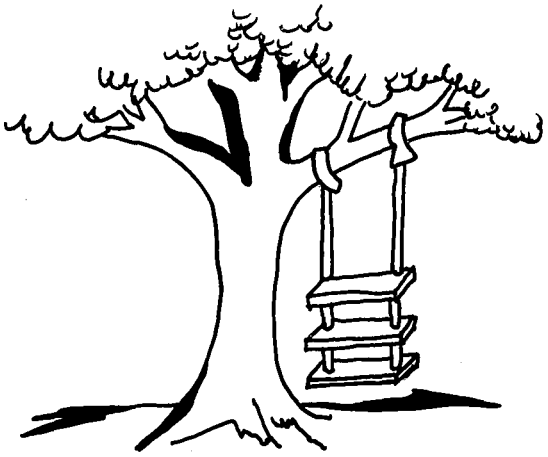
Apart from the factors mentioned, every project has its own individuality and uniqueness. It needs to have scope for flexibility and sound co-operation - it's a bit like marriage - and they say that the secret of a happy marriage is to treat every performance as if it were a premiere!

We really can't afford to be rigid any more that we can afford to be complex.

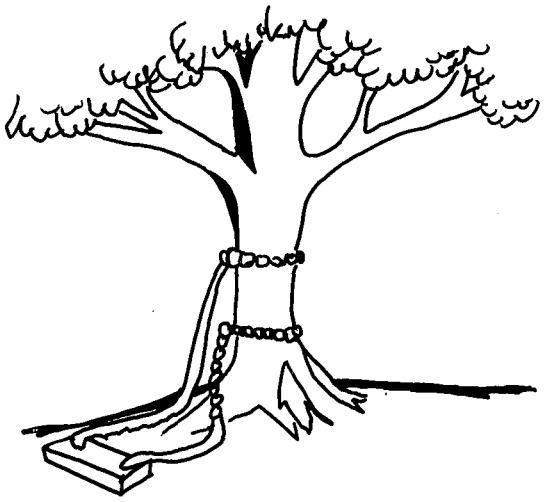
Let me show you a perhaps over-simplified example of what this desire for rigidity or complexity can lead to in the case of developing a child's plaything.



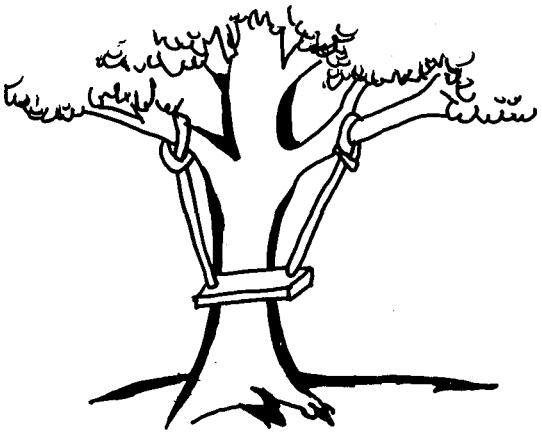
-- WHAT THE EXPERTS PROPOSED



-- WHAT THE INTER-GOVERNMENTAL AGENCY SPECIFIED

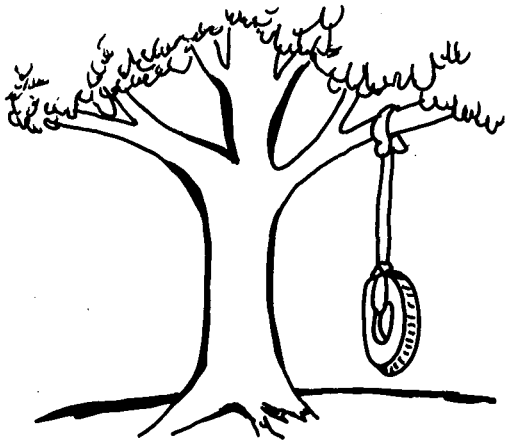


-- THE DESIGN AFTER REVIEW BY THE CONFERENCE OF MEMBER STATES



-- THE FINAL COMPROMISE DESIGN AGREED

-- THE INFORMATION SYSTEM FINALLY INSTALLED



-- WHAT THE POTENTIAL USERS REALLY WANTED

No, we don't need that situation to even begin.

The next issue is the matter of DCE becoming the authority to take over all pollution control and the licensing of all discharges into the environment, including the control of smells.

Do we really need to duplicate the operating role and technical expertise of existing Government structures that handle this responsibility as an integrated part of their overall function?

For example, I don't see the Health Department being relieved of its responsibility for monitoring conditions that may affect the health of our community.

Equally, smells are either from chemicals that are objectively measurable in the environment (and existing Departments have the skills to do so) or arise from declared noxious industries that are planned for by the Town Planning Department - a task that they could scarcely hand over in total.

No, we certainly don't want duplication, not only on the grounds of duplicated and wasteful administrative cost, but also on the grounds of industry having to comply with yet another set of dual requirements, that would inevitably flow from such a situation.

Apart from this it surely seems desirable for DCE to work towards refining its role of co-ordinating the use of available expertise and services from the wide range of specialist Government resources, and from this, distilling the results into fact-based practical guidelines for environmental managers to follow and appreciate.

Additionally, it seems incongruous for a Department, directly responsible for "conservation and environment" to be the agency in itself for the licensing of discharges into the environment.

The next possibility, of calling for a more formal or even statutory set of assessment procedures, again seems to be entering the dangerous threshold of stereotyping the individuality of each proposal and rigidifying the manner in which it is assessed when the whole principle of the assessment system is intended to be dynamic, and needs to maintain the capacity for reasonable liaison, discussion and intelligent compromise.

Under this heading, it is seen to be necessary that there is scope to recognise where and/or when specific critical situations could occur and thus to plan for agreed contingency measures to then be taken within the context of the management programme.

Now to turn to the possibilities of full public inquiries, public participation and media publication of each individual ERMP being called for.

I find it difficult to visualise this as better than an uncouth intrusion on the executive role and responsible performance of Ministers and their Departmental executives. It will certainly lead to a complete abdication of those responsibilities apart, of course, from the shared confidentialities that are expected to take place (and be honoured), between the proponent and responsible Department heads in an atmosphere of meaningful co-operation.

Experience shows that the more responsible members of the public are aware of their knowledge limitations so that, generally speaking, it is I believe, contrary to the public interest that the opinions of a single-interest minority group or the like should be exploited to play on the apprehensions of the general public. Such a set of events tends to ridicule the effectiveness of legislation, descredit the integrity of the Public Service, and delay or frustrate the development of industry.

Taking these things into account, we believe that there is no responsible place for such a proposal.

The next item of concern is the prospect of the Minister and Cabinet being obliged to accept the EPA advice and for that advice to be published. Is there really scope for a spirit of honest co-operation and communication to be expected if this is to be seen as the reward?

We have seen that the preparation of these submissions is a costly exercise, and the consideration of such a prospect as this gives rise to the question of who will accept the legal liability of redress in the event of published advice being proven to be unsound?

The final item deals with proposals for reviewing the structure and composition of the EPA

We believe that the EPA and DCE, though inter-related, have two importantly discrete and separate roles to play. Much as they need to be co-operative, they need to be at "arm's length" in order to function effectively in an unbiased way and the chief executive of the Department needs to be free and clear of decisions made by the EPA.

In this way, he can play the lead role in determining the follow-up action to be taken or in setting up a structure for appeal in the event that this is called for.

He is, after all, the chief administrator of the Department and he needs to be sufficiently free and sufficiently dignified to do that effectively.

CONCLUSION

In closing off this address in the midst of these troubled times, I would like to share with you an extract from Lord Macaulay's famous essay of 1830, over 140 years ago:

> "On what principle is it, that when we see nothing but improvement behind us, we come to see nothing but deterioration ahead of us?"

Western Australia is not at the end but at the beginning of its development. I believe that we have the ability and the resolve to get rid of this "humbug thinking" because we must surely believe that co-operation is not a sentiment, but an urgent economic necessity for the good of all of us!

DISCUSSION:

Q. (Unidentified)

> As a Kwinana Shire Councillor I find I will not have time to debate the issue of which Mr. O'Callaghan spoke, regarding BHP and Alcoa. Apparently, Mr. O'Callaghan does not live in the area of Hope Valley, Wattleup or Naval Base, but he spoke of BHP as not having covered the

beach with slag. For his information, they had the right to do this, with government approval, if they had carried out the terms of their contracts to establish the Jumbo Steel Mill, but they failed to carry out this agreement, therefore our beaches in that area were not covered with slag. He spoke of Alcoa not poisoning the area. Alcoa and BHP, and I would also include BP, have desecrated a large area of Kwinana, or of Cockburn Sound. (We should steer away from saying Kwinana and speak of the whole of the Cockburn Sound.) Alcoa, up until just recent times, were spreading 38% of the SO_2 pollution in the area. Now they are changing over to natural gas which could be a good move. You have BP sheltering behind the Kwinana Act. They will do nothing and yet they spread 39% of the SO_2 in the area. Industry hasn't only done good things for the area. Mr O'Callaghan seems to fear the Environmental Protection Authority may in the future have too much power. If he was to live, as I say, in our particular area he would see, as I have seen from living a lifetime there, the desecration created by industry with government backing which was, in my opinion, and in the opinion of the residents in the area, absolutely unnecessary. When you look at Alcoa, they were settled in Cockburn Sound because it was argued they must have shore facilities to establish this industry which proved a lie because they moved inland to the Pinjarra area.

A. MR. EUGENE O'CALLAGHAN

I've been involved in the wake of sadness of people since the closure of the blast furnace at Kwinana. I've been involved with people who have lost their jobs and lost their self respect as the result of jobs lost in Kwinana. I'm not unaware of the fact that the Act of Parliament does not provide for BHP to not put slag on the beach. At the same time, I think we are all aware that professional managers these days don't do the sort of things that emerged out of 'Pickwick Paper' times and don't seek to see their identity and their professional signature on that sort of ravaging. I don't believe that management generally in these enlightened times with a conscience for the public is likely to do it. The point is they haven't done it, although they have had a right to do it.

Q. MR. BILL HARE (Conservation Council of W.A.)

It's difficult to respond to all the points that Mr. O'Callaghan has made. I would just like to make two points though: firstly, a general one in relation to the definition of 'environment' in the present Act. I would just like to note that all States except this State include the socio-economic aspects of the environment as well as the physical one, so I suggest that Mr. O'Callaghan's thinking is out of kilter with national and international thinking on this matter.

The second point I want to make, is more general. I was quite disturbed by Mr. O'Callaghan's failure to accept legitimacy of environmental concerns. By implication, what he was saying was that environmentalists were by and large irresponsible. What I'd like to suggest is that unless the Confederation of Industry, and development proponents in this State, accept the genuine and legitimate concern of conservationists and other people on a wide range of environmental matters then he won't get the co-operation he seeks and we'll see further division and challenging of industrial projects in this State.

A. MR. O'CALLAGHAN

I respect the conservation movement and I have been closely associated with and dedicated a great deal of my spare time to conservation issues, but I believe that the single interest approach is a difficult one. It's all very well to have all care and no responsibility, but the end result on the matter of industry not caring about social and economic factors, is really quite unreal. There is no way that industry succeeds without harmony of its people and, as I think I said, industry does not have 100 percent monopoly on brilliance. There is a learning curve of things which it is striving to incorporate and one of those is to ensure and provide for the social improvement of the workforce in order to have happy people doing productive work. I have been associated with that side of industry for 30 years. So, on the question of economic considerations, then indeed if anybody's got their money up, they're sure as God interested in the economics of it and they'll maximise it to their fullest if they can.

Proponents Viewpoint 3. Mining

Mr. Barry Carbon
(Manager - Environmental Department
Alcoa of Australia (Pinjarra))
The Chamber of Mines Inc.

INTRODUCTION

What do we want from our environmental impact and assessment procedures?

A mining company wants a procedure which allows its project to be approved, and it wants that approval as fast as possible so that money is not wasted. The company does not want excessive constraints placed on its development proposal. Above all the company wants that approval to have security; security which will allow it to make its large investment with confidence against the risk of abortion on environmental grounds.

A conservationist wants assessment procedures to provide protection of the world we both live in and make our living in.

Today we should ask if our present system supplies these wants and if it supplies them in the visible fashion. Can we do better?

THE STRENGTHS OF THE EXISTING SYSTEM

The mining industry believes that the present system works quite well. It has a series of strengths which make it at least the equal of any system in other parts of Australia. Any proposed change should build on these strengths, not sacrifice them.

- The present system gives both flexibility and finality. There are general guidelines to tell a company what is required, and an interactive process with Departments ensures that the appropriate issues are addressed. At the end of the process there is a finality of decision-making and the company knows precisely where it stands.

- A single authority has responsibility for co-ordinating the inputs of Agreement Acts. This means that a company has a single focus for directing its activities, but that Authority co-ordinates and facilitates the inputs of other relevant departments.

- The present system has allowances for public input.

- The elected Government makes the decision. The Government has the mechanism to hear all relevant views, but it does not abdicate its decision-making role to any department, public interest group or even court.

- The ERMP procedure allows for a system of ongoing reviews. For each major development there is a requirement to provide an annual report of environmental activities, and these annual reports are available for scrutiny by Government Departments. In many cases the triennial report is available for public review.

- Developments covered by Agreement Acts have "teeth" - i.e. there are penalties to the developer if they do not meet the environmental requirements set out under the ERMP.

- The use of the "Notice Of Intent" is useful to both developers and Governments. At this phase of a proposal it is possible to define the major issues in an interactive mode and recommendations can be made before important decisions (e.g. refinery location) are made.

THE WEAKNESSES OF THE EXISTING SYSTEM

In acknowledging the weaknesses of the present system I again stress that these weaknesses should not be overcome at the cost of the existing strengths.

- Social impacts are not included under the present system. We see this as inappropriate where the impacts on people may be as important as the impacts on their environment. Social impacts are already covered under Federal requirements which apply to most large projects.

- There is a lack of recourse where developments are outside special Agreement Acts.

- Some developments or projects are excluded from the need for an ERMP. For example the declaration of conservation reserves may have a significant impact on the availability of natural resources and thereby on the social well being of the community. Yet no ERMP is required in this instance.

- Some perceive that the present systems should be given legislative strength. This is debatable as the gradual and sensible evolution of our present system has given us one which works quite well.

- There is both a lack of visibility and a lack of response to the existing review system. It appears that even the interested public are unaware of the reviews which accompany modern developments. Further, there is an almost total lack of feedback to companies from Departments when reviews are submitted. The exercise, as it exists, is almost academic.

LEARNING FROM OTHERS

Two models have been suggested with characteristics which Western Australia might emulate. In generality I will refer to these as the USA model, based on a legal or adversarial approach, and a NSW model, with a heavy emphasis on public involvement and multi-departmental involvement. Both models are unattractive to industry, and I believe should also be unattractive to the Government.

The USA model is based on a system of access to courts. This has several weaknesses. Environmental matters are dealt with within a legal framework. The objective becomes setting and meeting the letter of the law. Environmental goals often become a secondary consideration. In order to cope with this situation, major companies in the USA have Environmental Departments dominated by lawyers, whereas in Western Australia such departments are the domain of environmental scientists. I believe that our society is more interested in wise environmental management than it is in having tight legal constraints. The legal system is geared for an adversarial approach, and under this framework opposing groups inevitably become adversaries. There is little "give and take" and both sides run the chances of being winners or losers. The win-win situation is not really a probability. Furthermore, the USA model has a propensity for long delays. As an opponent of a development

has the right of access to the legal system, vexatious litigation can and has delayed projects with resulting costs to the developers and community alike.

I believe the NSW model is based on a desire to provide access for the public into the decision-making arena. This is a laudible objective and has been achieved. It has been achieved at the cost of extreme delays, bureaucratic duplication and departmental inefficiency where the recommendation or even considertion of one department seems dependent on prior consideration of other departments.

WHO MAKES THE DECISION

We have a choice; either the decision for a major project can be made by elected Governments, or that role can be subsumed by the courts, by the public, by statutory authorities or by the technocrats. I have already mentioned the courts under my discussion of the USA model. I think we should be more interested in what is environmentally correct than legally correct, and I cannot counternance a system where the various stakeholders take antagonistic positions per medium of opponents in court.

The public needs to have input to decision-making; even to the extent that they need a greater role than is presently available. But the public cannot be the judge of the complex balance between costs and benefits of new developments, and the public through single interest groups cannot dominate the well-being of the community through the amount of noise that is generated. Statutory Authorities, or even Government Departments have a charter which demands them to represent a particular point of view. This disqualifies them from making decisions about major new projects. They are, and should be, a source of information and recommendations to Government on the various costs and benefits of a particular development, but not the decision-makers. The technocrats of our society have developed sophisticated expertise at analysing costs, benefits, management schemes, reporting systems, etc. They are, however, only part of our community and provide important details for decision making. But they are not decision-makers.

It is the elected Government which has access to all the relevant information, to input from the public, to expert advice from Authorities, Departments and technocrats and which, above all else, is responsible to the community. Any system which dilutes the role of the elected Government in decision-making cannot be in the interest of our society.

WHICH DEPARTMENT?

It has been well established within industry that effective environmental management comes only when development and environmental management occur simultaneously. The responsibility for planning and implementation of environmental control is only effective when those responsible for production are also responsible and accountable for environmental management. The alternate system where one group produces, and another group comes along afterwards with "band aids" to patch up, just does not work. I suggest that the simile is relevant to Government Departments. The responsibility for administering environmental controls should reside with the Department that is responsible for administering that development. For example where the Mines Department is responsible for many mining developments, it should also be the Department responsible for and accountable for the environmental peformance of those developments. It should have continuing access to experts in other departments (e.g. Department of Conservation and Environment) but the

Mines Department should not be forced to, or allowed to, abdicate this responsibility while DCE comes in with large "band aids".

A COMMERCIAL

No talk on this topic from the Chamber of Mines would be complete without a break for a commercial.

I am not going into the details of the contribution of the mining industry to the national balance of payments, nor am I going to mention the total area of resources impacted by the mining industry. But I will remind the audience of the necessity of national income from export dollars to keep our internal re-distributive system functioning. In simplicity, in Australia export dollars mean rural industry and mining.

This does not mean that the mining industry should be given special deals when it comes to environmental protection. It does mean that we should not apply unrealistic constraints without considering the costs to our community.

Again in simple terms, the modern mining company regards sound environmental management as plain good business. If companies act responsibly, and are seen to act responsibly, they feel that communities and Governments will treat them responsibly. This assumption is a basis for ensuring security of access to the mineral reserves which are essential to our industry.

SUGGESTED CHANGES

I have recognised that there is scope for improvement in what I see as an impact assessment system which already works quite well. I suggest the following amendments may be considered if the assessment procedures are to be reviewed:

- Where developments are not covered by special Agreement Acts, "teeth" may be provided by recourse through the Mines Department. It would not be possible to write environmental controls into the conditions of approvals through the Mines Department.

- Social impacts should be included in all developments requiring an impact assessment.

- All major projects should be included under the impact procedure, whether these projects be submissions from private companies, Government Departments or even proposals for conservation or for recreation areas.

- It may be desirable to have the present up-graded system enshrined in legislation. This should not occur if such legislation ossifies particular positions and inhibits the capacity for ongoing evolution and improvement. It should not be enshrined in legislation if this leads to a suggestion of a legal or adversarial approach.

- It would be desirable to have public access to the annual reviews of environmental activities undertaken both under the Mining Act and under special Agreement Acts. This would only be possible if the appropriate Government Department staff were available to service the public and the response of that public. Departmental resources need be available to respond to annual reviews.

CONCLUSION

In conclusion, I would say quite openly that the mining industry is nervous that the baby may be thrown out with the bath water - that proposed changes will have more losses than gains. There is a perceived need from all parties for a better system to allow inputs and involvement by the public in the process of environmental impact assessment and procedures. We of the Chamber of Mines are enthusiastic about a system which would encourage round-table discussions on impacts during the phase of impact assessment. We are strongly opposed to any system which imposes legal access to any group which may take satisfaction from excessively delaying or blocking a project for objectives which meet their own particular viewpoint. We have a system which works well. We should improve it, not destroy it.

DISCUSSION

Q. MR. MAX HIPKINS (Consultant)

You gained an audience reaction when you held up the New South Wales procedures chart. However, I put it to you that the two charts aren't directly comparable. If you add to the Western Australian chart the town planning and development processes; namely development approval, subdivision approval, and rezoning approval, you would find that our system is far more complicated than the New South Wales one. As Mr. Humphry has identified, we have no satisfactory way, in this State, of resolving differences of opinion, between State and Local levels. I also suggest that we have no satisfactory way of resolving differences of opinion between town planning and development matters and environment matters. Would you care to comment please?

A. MR. CARBON

I think you are quite right that the system as defined today, shows that there isn't a method of separating the powers of Local Government and of State Governments. In fact, the system is quite clear, as stated today. The State Government doesn't have rights on rezoning matters to override Local Governments. I'm not going to suggest whether that's right or wrong and in fact I think that Laurie Humphry and the following speakers adequately covered that point. I am not going to commit myself further on that point. I should have qualified my rebut on that by saying that I am a resident of Mandurah and I have a vested interest.

Proponents Viewpoint 4. State Projects

Mr. Kevin J. Wulff
Manager - System Development, SECWA

INTRODUCTION

Over recent years the State Energy Commission has developed an efficient working relationship with the Department of Conservation and Environment (DCE) and the Environmental Protection Authority (EPA). The effectiveness of the relationship depends upon a process of continuous liaison including both formal and informal reporting and feedback.

This paper briefly relates the practices and experience of the Energy Commission in relation to the present Environmental Impact Assessment Procedures in Western Australia, and the mutually beneficial aspects of the current flexible processes.

The Energy Commission's Charter

The State Energy Commission was formed on 1st July, 1975 by combining the existing State Electricity Commission and the Fuel and Power Commission. It now opertes under the State Energy Commission Act (1979).

The Commission is responsible for ensuring the effective and efficient utilisation of the State's energy resources and for providing Western Australia with economical and reliable supplies of electicity and gas.

It supplies electricity to industrial, commercial, agricultural, and residential customers throughout Western Australia and reticulates natural gas to customers in the Perth metropolitan area.

The Commission is also responsible for obtaining the greatest benefit for the people of Western Australia through assessment of the State's energy resources and needs, and formulation of policy recommendations and advice to the Government of Western Australia regarding energy resource development.

The Energy Commission's responsibility is therefore to reliably provide for Western Australia's on-going energy requirements in such a manner as to optimise the costs and benefits to produce greatest overall benefit to the State.

For this reason the Commission considers thorough environmental planning an integral facit of project optimisation during feasibility, design, construction and operational phases of the Commission's activities.

Obligations Under the Environmental Protection Act 1971-80

The Environmental Protection Act does not discriminate between private and Government organisations in making provision for the Environmental Protection Authority to request information of proponents.

The potential environmental impact of a project is the same whether the project is private or Government sponsored. A poorly conceived or designed project, although intended to provide a net benefit to the owner and/or the State, can result in a substantial social cost when the true costs of the project, including environmental impact, are recognised.

It is also essential for the owner and/or the State to spend its money prudently and efficiently.

It is essential that the true nature and extent of all costs and benefits of a proposal be identified in order to optimise design of the project and achieve maximum nett social benefit.

Commission Structure

The Commission's organisation and processes related to environmental matters have evolved and improved over recent years as a result of the greater level of interaction with the Department of Conservation and Environment.

Development of environmental policies and procedures and maintenance of an environmental overview of Commission activities is now the delegated responsibility of the System Development Division. This Division undertakes feasibility studies, plans major electricity and gas developments and obtains statutory clearances. It also provides specialist input on environmental matters to project definition studies, project design, construction and operation.

Delegated day to day responsibility for these activities rests with the Environmental Investigation Group which reports to the Manager System Development Division. This Group presently comprises three members with expertise covering the fields of power station engineering, physical science (notably environmental fluid mechanics), biological science, plus a broad range of environmental issues. The System Development Division, along with other Divisions involved in planning, design and construction is responsible to the Assistant Commissioner of Development.

The System Development Division often acts in a co-ordinating or investigative role, with operational Divisions conducting regular monitoring, reporting, preventative and corrective maintenance programmes.

In addition to the above, there is an environmentalist member of the Energy Advisory Council - the community advisers to the Board of Commissioners.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The formal environmental review and approval process is seen by the Energy Commission as providing a framework for internal assessment and approval of projects as well as the basis for interaction with the DCE and EPA.

Interaction with the DCE is a continuous process involving the constructive exchange of information, leading to formal submissions to the EPA in the form of Notice Of Intent and if required, an Environmental Review and Management Programme.

A brief description of the process follows.

Project Planning and Identification of Potential Environmental Impacts

Within the Energy Commission the need for a project and its feasibility is first established by the preparation of a Project Planning Report. This considers the project requirements, alternatives available and then describes in concept the proposed project.

Environmental policies and good environmental practice are incorported in this planning process.

Once the general technical parameters of the project are determined and approved it is necessary to identify the major environmental implications of the project and gauge the magnitude of these effects. This preliminary environmental appraisal may be undertaken internally when the expertise is available or alternatively by consultants retained by the Commission for this purpose.

The assessment is intended to alert the Commission to major environmental issues specific to the project under consideration. Such an appraisal is based mainly on the experience of the Commission and its consultants in relation to previous projects of similar nature and information available in the literature.

Preliminary Discussion with Department of Conservation & Environment and other Agencies

With the broad project parameters defined the Commission approaches the Department of Conservation and Environment in order to initiate discussions. The discussions between officers of both organisations generally consider the project concept and the preliminary environmental appraisal.

These discussions provide an opportunity for the proponent to brief DCE officers on the project and obtain their advice on the environmental implications of the project. DCE sometimes highlight additional matters which require consideration.

Other agencies also need to be consulted at this stage in the project. Such groups include the Public Health Department - Clean Air Section, the Forests Department, the Museum Department of Aboriginal Sites, the Agricultural Protection Board, Public Works Department, various management Authorities and other appropriate Government and Local Government Authorities. It is important that these agencies be familiar with the project at the earliest stage of planning if the interests of all parties are to be considered in the project planning process.

Project Definition Process - Notice of Intent

The Project Planning Report is submitted to the Projects Planning Committee with a request for Approval in Principle for the project concerned. Once this approval is received the project proceeds to detailed investigation and design, known within the Commission as Project Definition.

Based on information contained in the Project Planning Report, a Notice Of Intent (NOI) is prepared. It describes the salient details of the project, justifies the need for the project including alternatives considered, describes in general terms the environment in which the project is set, the impacts the project will have, and actions which will be taken to mitigate these. The NOI formally advises the Environmental Protection Authority of the project details and should provide sufficient information for the Authority to judge whether or not the proposed project will have sufficiently significant environmental impacts to require more detailed consideration. The NOI document, as prepared by the Commission, is generally between 20 and 50 pages, although on occasions considerably shorter.

The Commission understands that the EPA would in future like to receive much briefer NOI earlier in the project planning process, preferably during feasibility studies. This would enable the Environmental Protection Authority and Department of Conservation and Environment to provide guidance on the direction of environmental assessments much earlier in the planning process. However such an NOI, although providing early formal advice of the project, would obviously not contain firm project details and, as most proponents would be aware, project plans often change radically during this formative period.

Supplementary Information

After considering the Notice Of Intent the EPA might;

(1) Approve the project proceeding on the basis of the information contained in the NOI.

(2) Request information supplementary to the NOI.

(3) Request an Environmental Review and Management Programme.

In the event that additional information is required, the EPA generally seeks a more detailed project description or commitment on particular environmental precautions and management procedures. It is generally requested when the EPA considers that insufficient information has been provided in the NOI, but in their judgment the project is probably acceptable and unlikely to result in significant environmental impact.

In the case of several urgent Energy Commission projects, the EPA has given approval in principle for projects to proceed subject to satisfactory resolution of particular matters with nominated officers of the Department of Conservation and Environment. The EPA have on these occasions requested that a report be submitted to the Authority following resolution of these matters.

This has proven to be an extremely practical arrangement for the Commission, permitting urgent projects to proceed while detailed issues are resolved at a working level. Clearly, the EPA's willingness to permit this flexibility reflects a confidence on their part that the environmental issues will be satisfactorily resolved. The Commission intends to ensure that the confidence is maintained.

Environmental Review and Management Programme.

Where the EPA judges the environmental impact of a project to be potentially of great environmental significance, an Environmental Review and Management Programme is requested.

The Energy Commission has prepared three such documents in the recent past and is at present completing a review of the proposed Bunbury C Power Station development. The other assessments related to the Dampier to Wagerup Natural Gas Pipiline, its extension to Bunbury and the Ord River Hydro Electric Development.

CASE STUDY - BUNBURY C POWER STATION

The Energy Commission is presently investigating the environmental implications of building a 600MW power station adjacent to the existing

Bunbury Power Station situated on Koombana Bay. When the project was first proposed consultants were engaged to undertake a desk study in order to advise on the environmental effects of the station and to define those environmental matters requiring further investigation.

The Bunbury 'C' Power Station investigation, provides an example of such a review. Following consideration of a NOI submitted to the EPA in 1981, the Authority requested the preparation of an ERMP. The Department of Conservation and Environment liaison officer nominated for the project, in consultation with other Departmental Officers, prepared a comprehensive list of matters which it was believed should be addressed in the ERMP. These included all the normal requirements such as project justificiation and discussion of alternatives considered, and a wide range of matters specific to thermal power station construction and operation. We believe that this activity by the Department, and the discussions that ensue from review of the list, are key aspects in the successful completion of an ERMP.

Two options were available when considering the Bunbury Project environmental assessment; either to contract the entire responsibility for undertaking the Environmental Review and Management Programme to one consultant who in turn might subcontract specific studies, or, retain overall management control of the project and contract out investigations as necessary.

The Commission chose the latter option. It was considered that in this case close involvement of the Commission in the direction of ERMP investigations would result in the most effective integration of environmental and engineering considerations.

At the same time the Energy Commission recognised that it did not possess the in-house man hours nor expertise to undertake the preparation of the ERMP document. Consultants were invited to submit detailed proposals for this work and a suitably experienced consultant was subsequently appointed.

In consultation with the Department of Conservation and Environment, the proposed project was analysed in detail and the range of environmental investigations considered necessary were defined. Terms of Reference were prepared for each investigation which could not be undertaken within the Commission. Following detailed assessment of proposals consultants were engaged to undertake studies and provide advice in each of these areas.

A number of matters were clearly of major significance. The first related to the proposed cooling water system for the station which would draw water at ambient temperature from Koombana Bay, or the adjacent inner harbour, pass it through the condenser system of the station and release heated water back into the environment. The second was the effect of gaseous emissions from the station chimney.

Both of these became the subject of intensive investigations and provide examples of the close working relationship between the Commission, its consultants and the Department of Conservation and Environment and other Governmental Agencies.

The Commission recognised that operation of the power station would raise the ambient temperature of Koombana Bay if the cooling water system discharged into that water body. It also recognised the importance of the adjacent Leschenault Inlet as a recreational and commercial fishing

area, particularly for blue manna crabs. The role of Koombana Bay in the crab life cycle was uncertain. However it had been postulated that the crabs moved from Leschenault Inlet through its artificial entrance, known as "The Cut", on their way to the ocean. There was therefore potential for the cooling water plume to change the behaviour of the crabs and possibly adversely affect the population. The elevated ambient temperature in the Bay might also adversely affect the operation of the station should higher temperature water be recirculated into the cooling water intake and through the station and so reduce thermal efficiency.

Two major areas of investigation were pursued:

(1) Studies of the natural circulation of water within the Bay and exchange with the open ocean, movement of water from Leschenault Inlet to the Bay and heat exchange with the atmosphere.

(2) A description of the biological environment of Leschenault Inlet and Koombana Bay, and an assessment of potential impacts on the biota.

Recognising the complexity of the investigations and the benefit of progressive evaluation of studies, it was mutually agreed to establish a Technical Advisory Group comprised of representatives from the Commission, the various consulting groups, the Department of Conservation and Environment, Fisheries and Wildlife and the Waterways Commission representing the Leschenault Inlet Management Authority. The Energy Commission through its consultants reported regularly to this Group on progress of investigations. The results of studies were then discussed by this Group of specialists which provided technical advice on the future direction of studies considered most appropriate. The Commission at all times retained responsibility for, and control of, the studies.

This continuous process of discussion and feedback on the progress of studies provided an opportunity for the consulting groups to exchange relevant information on physical and biological characteristics of the area and a venue for discussion amongst their scientific peers. This process proved most valuable. As information became available it was clear that the direction of studies needed some revision and this was achieved based on the advice of the Technical Advisory Group. Relations between the various participants were excellent, at all times positive and constructive. Although representatives of the Department of Conservation and Environment were acting on the Group purely in a scientific capacity, their experience and access to Departmental resources proved of great value.

TIMING OF ENVIRONMENTAL INVESTIGATIONS

The Commission sees environmental considerations as an integral part of project planning. For this reason environmental principles are considered along with engineering requirements at all levels of project planning. Environmental investigations proceed simultaneously with project definition and design.

Environmental investigations play an important part in ensuring the optimum design of a project, however, the present environmental assessment process also affects project timing signficantly. If an ERMP is prepared after the completion of detailed project planning, any subsequent assessment period may significantly delay construction of the project concerned. The normal assessment process for an ERMP, including public comment period, entails six to eight months elapsed time from submission of the draft document to final decision.

It is this period which has the most significant impact on project lead time. Proponents have a choice of continuing detailed project design and planning, in which case they take the risk of not receiving project approval from the EPA or having to implement significant changes to their plans; or they can suspend all work on the project for that period.

It may be argued that the above problem can be avoided by completing environmental assessment early in the planning process. The Energy Commission would contend that effective environmental planning is very difficult unless the assessment process occurs concurrently and interactively with detailed conceptual design for a project, at which stage the project is generally committed to a firm schedule. In this regard, it is normal for a representative of our Environmental Investigations Group to be a member of the Working Group (or Task Force) for any major project.

The Energy Commission believes that it would be valuable for the EPA to review the environmental assessment process with a view to streamlining its 6 to 8 months assessment period as the length of this period appreciably increases the "Interest During Construction" component of project cost.

CONCLUSIONS

The Energy Commission is a semi-government organisation and is subject to exactly the same environmental procedures as private proponents and is also subject to the same restraints of prudent spending.

Over the years the Energy Commission has developed better interaction with the Department of Conservation and Environment and as a result a better internal organisational arrangement for handling environmental matters. The Commission has had the benefit of a great deal of assistance from the Department of Conservation and Environment, and a flexible constructive approach from the Environmental Protection Authority.

The Energy Commission believes that the present flexible environmental procedures provide a good balance between achieving environmental objectives while recognising economic goals essential to the proponents' viability.

The Energy Commission recommends that consideration be given to ways of reducing the present 6 to 8 months ERMP assessment period which adds appreciably to project cost.

DISCUSSION

Q. MS. JUDITH SMALL (HARVEY SHIRE COUNCILLOR)

I've always believed that the SEC is one of the greatest vandals that this country has ever had to put up with and we've just had public admission of this because how can anybody in their right mind imagine that a power station will enhance beautiful Koombana Bay? I would like to ask whether you feel justified in placing a power station on an inlet that is precious to this State because it is beautiful and a place of recreation. There is no way, I believe, that you could imagine that it would help that area. What's wrong with Collie? They've already got one, why can't they have another one? I'd also like to correct you when you said that the local authorities were consulted. Allow me to point out to you, sir, they were not - one may have been.

A. MR. WULFF

I think we find, unfortunately, with most of our projects that the people don't want them where they live, and that seems to be a reaction of the community to most development proposals. As far as the Bunbury Power Station is concerned, we've undertaken a very exhaustive assessment of the environmental effects and this will be available for public comment. I'd suggest that the speaker make available her comments which will be considered by the DCE and the EPA in due course.

Environmental Economics in Assessment

Mr. John Thomas
CSIRO

INTRODUCTION

This paper starts by considering whether environmental problems are likely to feature regularly in future decision-making. The bulk of the paper then sets out some of the characteristics that any environmental economics assessment should have. Here I will be concerned with the setting up of alternatives, deciding what's economically relevant, types of natural and environmental resources, accounting systems, valuation problems and how to cope logically with uncertainty. My message is that insights which are obtainable from broader economic analysis can be built into the decision process if appropriate mechanisms are introducted. These particularly concern Terms of Reference for assessments, mechanisms for ongoing research and provision for economic reviews of assessments.

THE DEMAND FOR ENVIRONMENTAL ASSESSMENT

I don't need to tell this audience that the economic situation has changed dramatically in recent years. Five years ago we had come through a long period of sustained growth. There has since been rising unemployment, declining productivity and continuing inflation. So we might ask:

Won't the pressure ease on environmental resources - on water, on air and on land? In other words can't we relax a bit?

To this question I would answer "no". I don't think the pressure will ease. A recent OECD study has suggested that even with slower or zero economic growth, environmental problems are going to multiply and increase in complexity. I can think of several local examples which support this view.

Forests - Even without growth in consumption of forest products in WA there will be more difficult environmental tradeoffs in supplying future demand.
Soil Conservation - Technological changes which can improve the competitive position of our farmers in world markets, may increase the rate of degradation of the soil resource. I'm thinking particularly of cultivating, harvesting and seeding machinery, and the effects of herbicides, insecticides and fertilisers on the ecology and quality of pastures.
Land and Stream Salinity - We are living with the continuing results of past clearing. Even without growth in our agricultural area, land and stream salinity are going to become more widespread.
Stock of Undisturbed Natural Environments - This is continually declining, and will do so even with zero economic growth. Wetland areas and forest vegetation complexes are especially likely to be affected.
Metropolitan Environment - As Perth's population approaches the million mark it is going to be more difficult to preserve its renowned environmental quality. There will be increasing pressure on beaches, rivers, marine and estuarial biota, waste disposal capacity and local water resources. One might expect higher concentrations of traffic, air pollution and noise generators.

So with or without the economic growth we would like to have, there will be a continuing need to assess the environmental dimensions of changes occurring in the WA economy. There will need to be an efficient, fair and economically responsible set of mechanisms for environmental assessment. What, then, does the economics profession have to offer?

RESOURCE AND ENVIRONMENTAL ECONOMICS

Two branches of economics have been particularly concerned with resource allocation problems of this nature, namely resource economics and environmental economics.

Resource economics is concerned with the production, consumption and time rate of use of limited renewable and non-renewable natural resources. Environmental economics developed from the appreciation that changes in the environment do not get to be reflected directly in our most commonly used indicator of scarcity or plenty: namely market transactions and market prices.

Both branches of economics provide extended rules for assessment, so that the economic costs of natural resource depletion or reduced environmental quality are accounted for in decision-taking.

Benefit-cost analysis in its various forms is an important tool in resource and environmental economics, but there are other techniques such as planning balance sheets and multi-objective optimisation, for which much the same rules apply.

The key difference between cost-benefit analysis and an ordinary investment assessment that might be done by an accountant in any business firm or trading corporation is that economic costs and benefits to the public as a whole are considered.

I should say that the question of who gains and who loses is by and large incidental in CB analysis. No special weight is given to minorities or disadvantaged groups for example. If a project involves inequities it is assumed that this will be made clear and that some transfer of benefits can be arranged so that no-one is economically worse off.

What, then, are the main characteristics of an environmental economics assessment, and how do they compare with EIS's published in Australia?

DISPLAY OF ALTERNATIVES

The most important feature of a project assessment in environmental economics is that alternatives are examined. A typical agenda for project assessment would comprise a set of questions like this:-

What is proposed?
What are the problems?
What are the alternatives?
How is a preferred alternative to be selected?
What are the economic and environmental effects of each alternative?
How do the alternatives compare according to the chosen criterion?

Thus there is a heavy emphasis on improvement and selection among alternatives. This goes back to the earliest writings of environmental economists. Just how wide one has to look for the "alternatives" is of course always a vital point. Local, regional and national dimenions may have to be considered.

The main objective should be to determine just how profitable the various alternatives are and how their benefits are likely to be distributed between different groups. An environmental economics enquiry should lead to some improvement in project design from the public's point of view, but it can also lead to improvements for developers too: e.g., by confirming a general acceptance of the project. The projects which end up by being abandoned after such an enquiry are likely to have had very uncertain economic benefits - at least in comparison with alternative allocations of economic resources.

How much attention has been paid to alternatives in Australian assessments? Well, the record is pretty patchy. Considering Commonwealth procedures, several of the uranium EIS's of the late 1970's considered no alternative to the proposed project. On the other hand, sand mining at Fraser Island was rejected because the Australian Government of the day was persuaded that alternative sources of the raw material could be developed at little or no extra cost to the general economy. The halting of the Gordon-below-Franklin dam in SW Tasmania has hinged in part on the belief that alternative economic futures are possible for Tasmania which do not depend upon this hydroelectricity scheme.

In Western Australia, too, the record is patchy. Some consideration of alternatives is evident, for example, in the selection of routes for SEC power lines, and in the ERMP's for the Harding Dam in the NW and the Dampier-Perth Gas Pipeline, but not in the ERMP's for uranium or bauxite mining, which have concentrated on a statement of the economic and environmental effects of the single proposed project.

If we are to get a better appreciation of alternatives to given projects, more detailed terms of reference for ERMP's will need to be set and careful attention will need to be given to the provision of mechanisms for review. This could involve more interaction between government, developers and third parties prior to the writing and publication of an ERMP. It may also be necessary to address alternatives which are outside the competence of the candidate developer.

DECIDING WHAT'S RELEVANT

A crucial question in any partial economic evaluation is: what is dependent and independent of the proposed project and its alternatives. Economists have coined the phrase "other things remaining the same" in order to confine themselves to a limited set of economic changes which they want to analyse in detail. This notion is crucial in assessing alternatives, and there is some justification, if terms of reference are to be written, for the government, developer and third parties to reach preliminary agreement on which items are dependent and which independent of the proposed development or its alternatives.

This is especially important in deciding whether to include the multiplier or flow-on effects of projects. An obvious example in our region arises in the assessment of alternative mining plans for the bauxite-alumina industry and whether the multiplier effects of refining are relevant. The capital invested and incomes generated by alumina refining and aluminium smelting far exceed those in the bauxite mining part of the industry and in turn the refining sector expenditures do have multiple effects within the economy. But provided that decisions about where to mine do not affect the production schedules of smelters or refineries, then all the benefits from refineries are indeed independent of the decision where to mine. Bauxite is a bulk gravel of which there

is a large stock in the Darling Range. An ERMP which explores alternative mining patterns can possibly achieve environment conservation, without affecting the economic benefits of the refining sector in any way.

DISTINCTION BETWEEN REVERSIBLE AND IRREVERSIBLE ACTIONS

While we are often uncertain in our predictions about a project's economic life, we usually know what the irreversible effects will be.

Usually, avoiding a change which would bring irreversible environmental consequences only implies a technically reversible development choice. This distinction is of importance, for example, in leading to quite different environmental provisions in those industries which are exploiting Karri forest as compared with sections of the Jarrah Forest.

STOCK AND FLOW RESOURCES

The distinction between stock and flow resources is very simple. A stock resource is fixed in quantity and cannot be replaced, such as the Northwest Shelf Gas deposits. Forests, water and crayfish populations are examples of flow resources. But we can choose to treat a flow resource as if it were a stock. If it is decided to treat a resource as a stock, we have to decide what is the best rate of extraction over time. To take one example the time rate of extraction of NW Shelf Gas is yet to be subjected to any economic study, yet this affects environmental choices through its impact on energy futures. Incidentally, it seems we got an impeccable ERMP procedure for this project, where economic prudence and a measure of luck would have delayed the project indefinitely. Subsequent gas discoveries, reduced oil prices, and evaporation of Japanese intent to buy WA gas have made a nonsense of some of the claims made in relation to environmental enquiries just a few years ago.

With flow resources we should know what levels of benefits/costs flow from alternative rates of usage. Often biologically trained resource managers try to establish a maximum sustainable biological yield. This may be different from the economic optimum and it may not be the best for conservation objectives either.

BROADENING THE ACCOUNTS, BY USE OF UNPRICED VALUES

Perhaps the most distinctive feature of environmental economics is its attempt to extend our social accounting system by attributing economic values to services of the environment for which no market price exists. In my own work I have argued that estimation of economic benefits from salinity reduction would help to resolve water quality management issues in a more incisive way than bureaucratic interpretation of standards established in other parts of the world.

Environmental economists are often caricatured as irrepressible valuers of everything under the sun, often by methods which strain statistical ingenuity, economic concepts, and even moral sensibilities (attribution of economic values to lives saved by environmental improvement is a case in point).

Whole books and thousands of journal artices have been written on this topic. There are some environmental services for which I can envisage no better yardstick of resource allocation and management than economic value. I would put most air and water quality topics into this category,

as well as some categories of recreation, land use planning and energy conservation. Environmental impact assessment in these fields can be more incisive if economic values are estimated. However, some long term research is going to be needed to establish the basic models and estimates. It's too much to expect the work to be done within the span of a given project assessment. The results of the longer-term research can be adapted and applied in specific ERMP's and EIS's.

But there are also courses which as individuals and as a society we are prepared to follow because they are an expression of our human style and reverence for the natural worlds. These decisions flow from higher order motives than efficient living, or watchful prudence.

So in these situations we become involved in a declaration of values rather than a merely deductive economic choice. The Gordon-below-Franklin Dam case and refusal of development on sites which are sacred for aboriginals seem classic examples. I think we are all capable of such choices and when we are making them we should be aware of the conflict which we are creating with our more mundane concerns and values. But what we should not do is to bolster a case held on fundamentally non-economic grounds by pretending there is really good economic justification for it as well! The economic returns from projected alternatives to the Gordon-below-Franklin Dam in Tasmania and the alternatives to the use of the Shannon Basin for logging in the South West of WA deserve to be reviewed just as critically from an economic point of view as the original projects.

TREATMENT OF UNCERTAINTY

I have already implied that the evaluation of alternative plans requires careful quantification of economic and environmental effects. By and large, Australian EIS's provide an impressive array of facts and predictions relevant to the project. But they are not usually presented in a choice framework. The predictions, in particular, are often used to give a high gloss of confidence about the project. Yet in fact, the future form of a project is often extremely uncertain where the longer term future is concerned.

However, there are some basic guidelines which can be applied to assess the degree of certainty or uncertainty in a project and adjust our commitments accordingly. It is illogical to commit scarce resources to highly uncertain ends. Beyond about thirty years hardly any prediction is worth the paper it is written on.

The fact is that we do not know what the economics of any natural-resource based industry will be thirty years from now because the possibilities for competitive supply sources, technical change and discovery of substitutes are quite enormous. To base our environmental management decisions on the assumption that an industry will have a profitable life limited only by the local stock of its raw materials is to fly in the face of economic reason and experience. There isn't one abandoned gold mine in Australia that doesn't have gold in it. But, to ignore this fact of untimely economic death also has the disastrous effect that we get a blinkered perception of the degrees of freedom we have to conserve the natural environment. What's the point in arguing about mining plans, if all the mineral is to be mined sooner or later? In a long term Malthusian future we cannot have our cake and eat it - but actually we don't know whether or not the long term future is a Malthusian one requiring resource exhaustion.

In practical terms what can be done? First, I do not believe that Australian governments need to award indefinite rights to natural resource exploitation of any kind. They will continue to attract development based on limited horizons even for the most large-scale capital-intensive industries. Second, even if agreements between governments and developers have indefinite legal duration, planning itself should be based on the assumption of reasonable limited life for the project, avoidance of irreversible actions where costs and benefits suggest this is achievable and avoidance of big risks, whether they are environmental or economic. This is another topic which can only be satisfactorily handled within the assessment process by careful drafting of terms of reference.

SCIENTIFIC CREDIBILITY

It is generally the intention of an EIS to present an authoritative statement. But the economic content of EIS's must usually be heavily qualified to be acceptable as true fact or reasonable prediction. I'll give just two examples. Uranium EIS's in the late 1970's were quoting prices for uranium oxide three times the USA market rate and in a market that was becoming even more oversupplied. In WA the Wagerup Alumina Refinery had projected receipts of some $100 million by 1983, compared with an actual outcome of precisely zero. These unduly optimistic outlooks must have had a pronounced influence on the reception of the EIS's by the governments concerned.

The only corrective to such error known to me is for there to be arrangements for independent review of EIS's. Such reviews would be likely to throw a fair amount of cold water on some proposals, and it would not be a particularly pleasant task to undertake them. But they are a necessary corrective to procedural bulldozing.

But who should actually have the task of preparing the economic review of an EIS? The EPA is an advisory body which does not itself possess the resources to undertake detailed research. No single department has the full complement of specialist and integrative skills for the multidimensional problems which occur. Moreover, the whole purpose is to promote impartial, even non-governmental comment. Ad hoc committees such as the TAG and the DRSG can serve a useful review purpose, but they lack continuity and have limited scope for developing their own research in response to given problems. None of the tertiary institutions is maintaining a sufficient establishment of researchers who could develop a cohesive programme of resources management research responding to current problems. Academic interests can diverge from governmental ones.

One innovation a new government might consider in this regard is the establishment of a Natural Resource and Environmental Planning Institute in Western Australia to undertake relevant technical, social and economic research programmes and to provide economic reviews of development proposals.

CONCLUSION

I have painted an impressionistic picture of the environmental economic approach to project assessment. I have argued that the practical application of its principles is likely to make assessments more informed, more incisive, more wide-ranging, less ridiculous, but also more difficult to do well and probably more qualified by way of conclusions, particularly about the longer term. The relevant methods are now well known. The main barrier to their application is

institutional. They can only be used with effect and with efficiency if the terms of reference and agenda for environmental enquiries are better planned. They will raise the level of public debate if there is a commitment to open government.

Either disclosure or independent governmental estimates of the relevant economic data should be sought.

What financial data are actually relevant will vary from case to case. For this reason it is difficult to find satisfactory statutory provisions governing disclosure. There can be no doubt that statutory requirements for disclosure would also represent a decisive break with the past modes of development planning and control in Western Australia. Moreover, in environmental assessment one is looking to the future, rather than reviewing recorded economic transactions, and so at least some of the required information may be of a speculative nature.

In my paper I have argued that, often, it is only a part of a given project for which the private costs and returns have to be assessed against environmental considerations (variable bauxite mining costs and effluent disposal costs from alumina refineries are good examples). On the other hand, in many cases the economic assessment needs to consider not the fine commercial details of the given project, but the industry situation as a whole across several regions. (To take one example, in considering an application for uranium mining in a national park, the costs and returns of the individual project might be less important than a review of overseas markets and alternative sources of production in Australia.) Whether the assessment focusses on the critical environment-impacting part of the given project, or on the wider industry situation, the information sought to determine matters of public interest is not necessarily exactly the same as the information that proponents wish to remain private.

I believe it is extremely important to keep the demands upon proponents reasonable in terms of both the quantity and the quality of information sought. It is also desirable to foster an assessment procedure which emphasises the positive, cooperative side of the assessment process as much as the negative, disputational side. Somebody has to decide what is relevant and what is not relevant : hence my emphasis on the careful development of terms of reference for specific E.I.S.'s and E.R.M.P's.

One solution would be for the EPA, or some other government body, to be required to request relevant economic information of the proponent, with some provision for appeal. The EPA or other government body could then be given responsibility for deciding which items should be made public and which should remain confidential. But in any case the EPA should be required to make public the nature of the information obtained or requested, the way it has been used in assessment, and the conclusions it has drawn. If specialised staff are coopted onto technical advisory groups to analyse the information they should be bound by rules and penalties for improper or unsanctioned disclosure. Turning to the proponents, they have the right not to disclose information; but in this case the economic aspects of the assessment should be based on independent estimates of the relevant items; the assessment might take longer, and the proponent should bear any extra cost involved.

EPILOGUE : ON PRIVACY AND PUBLIC HEARINGS

The paper as read is concerned largely with the need to incorporate economic analysis in the environmental assessment process. Its two main suggestions of a procedural nature are (i) that assessments should include an analysis of the economic alternatives to - or variations on - a project, where these are thought likely to offer a better environmental outcome and (ii) that there should be some provision for independent economic review of assessments.

There are many different ways in which these objectives can be met. There are choices to be made: for example, between political and executive approaches; between bureaucratic and external technical assessement; between public and private assessment procedures; and between open-access environmental courts and more limited judicial arrangements of which the current WA Environmental Protection Authority may be cited as one example. These choices are influenced more by administrative, social, legal and political factors than by economics. There is one aspect, however, on which I wish to comment, and this concerns disclosure of private (usually financial) information as part of the assessment process. This arises just as much with public sector development proponents as with the private sector.

Environmental assessment is largely about possible differences between public and private interests, and about the airing and hopefully the resolution of the differences. It is very difficult even to attempt such a reconciliation if relevant data is missing. It is generally not the right of the public to access financial information from public trading corporations or companies beyond that provided in such documents as annual reports. However, there could be said to exist a natural right to access information relevant to the public interest: tax returns, customs declarations and applications for governmental grants or subsidies are common examples. The mechanism for accessing such information is usually disclosure by the applicant. However, in some cases where the applicant does not wish to disclose, the public authority may make its own estimate, without prejudice to the project: this is common in customs and excise administration, and deliberations of the Australian Industries Assistance Commission. Where development proposals impact on public resources and environmental amenities it is only reasonable that the public or its governmental authorities should base their decisions on the relevant economic information.

DISCUSSIONS

Q. MR. JOHN QUILTY (ALCOA)

Mr Thomas, I would submit that economic prediction is more an exact science than weather forecasting as fairly well demonstrated by the current financial plight of the world and the degree to which that was predicted by leading economists. In this context, when you talk about economic assessment of projects (and one bears in mind that proponents of projects are looking after their funds, the funds of their companies and the funds of their shareholders and therefore presumably, hopefully, are going to do a fairly detailed assessment of the economics or otherwise) how do you see economic assessment by bodies external to the proponent coming up with more precise and more accurate definitions? You suggest, for instance, that you can only predict with any degree of certainty the economics sphere 30 years into the future. Thirty days might be closer to the mark.

A. MR. THOMAS

Well, I thought hard about the 30 years, but I think the 30 year projections that are possible relate to fairly large installations - transport systems, forests, perhaps even large scale processing industries which do tend to have long lives and which are entered into on the assumption that the life time is going to be tens of years. I didn't suggest that reviewers of EIS's would do any better than the proposers in terms of accurately estimating what, say the market for a particular project's output would be. I do think that they can be corrective in commenting on how reasonable the projections might be and what range of alternatives there might be around those projections. In the case of uranium, for example, there were several commentators who pointed out that the economic benefits were way out of line with what was appearing in EIS's at the time and I can't see that there's been any good come out of false assumptions that were perpetrated in those EIS's at that stage.

DR BRIAN O'BRIEN (Consultant)

I would just like to thank Mr Thomas for giving me a most convincing paper for leaving out economic arguments in environmental review and management programmes.

Q. MR. HARRY BUTLER (Consultant)

I'm a little confused with your apparent dichotomy of thinking. You began by mentioning increased environmental awareness throughout the community, including economists. You recongise that air, water, land and original ecosystems were resources and that development of these should be included in assessment. You then went on to talk about mining and other sorts of development, excluding the conservation development of these resources. I put it to you, that if we take what earlier speakers said today, then, for example, for a National Park to be declared, any National Park development authority would have to find out in advance all of the other possible resources, economic and otherwise, in that proposed National Park, as alternative developments before it could be declared. Could you comment on that?

A. MR. THOMAS

I think it would be silly not to review the alternative uses of a National Park if it's proposed. Is there a dichotomy in my thinking that you still have problems with? - I am sorry, I can't see any inconsistency. I stress the importance, in my view, of cataloguing the effects of a project in terms of the reversible and irreversible effects and biassing assessments in a direction that will avoid irreversible effects.

Defining the Scope of Environmental Impact Assessment

Dr. Malcolm Hollick
Department of Civil Engineering University of W.A.

INTRODUCTION

Before attempting to define the desirable scope of environmental impact assessment (EIA), it is worth considering what we are trying to achieve. Explicit objectives have seldom been defined, but an analysis of the literature and experience suggests that several have been significant in Australia. Primary amongst these is the desire to protect the environment from the adverse effects resulting from decisions made on the basis of inadequate environmental information. Essential to achieving this objective are means to ensure that environmental factors are given adequate weight in decision-making by imposing statutory responsibilities and/or educating decision-makers and planners to be more responsible to environmental issues.

At a more technical level, objectives include identification of means to mitigate adverse environmental effects, and definition of monitoring and research programmes to ensure that agreed mitigation measures are both implemented and effective. Secondary objectives include a desire to improve the level of public participation in government decision-making; the co-ordination of decision-making between different government agencies; and minimising the costs and maximising the benefits of the whole approval process.

This paper examines a number of issues relating to the scope of EIA in the light of these objectives.

SHOULD SOCIAL FACTORS BE INCLUDED?

Traditional development planning considers only the technical, economic, financial and legal factors that affect the project from the developer's viewpoint. To ensure that developments are beneficial to the community as a whole it is necessary to consider a broader range of factors, including environmental and social ones. EIA normally covers the former, but practice varies with regard to the latter. Where EIA does not include social factors, they are generally not the subject of a separate social impact assessment (SIA) and hence may not receive detailed consideration.

There is no doubt that unfortunate social side effects can occur as a result of development projects as shown by Gladstone and the social problems in many mining towns; by the community disruption that has resulted from some transport projects; and so on. Thus the need for SIA is clear. Whether it should form a part of EIA or be a separate process is not so clear, and there are advocates of both.

I favour the combined approach for two reasons. Firstly, the Commonwealth procedures include both the social and natural environmental factors, and uniformity of procedures at the state level would remove a certain amount of confusion. Secondly, a single EIA process would be administratively simpler and more efficient than two separate processes.

To include social factors in EIA in Western Australia would require a broadening of the definition of 'environment' in the Environmental Protection Act. As it stands, it only covers the natural environment plus aesthetics, and it is doubtful if the latter term could be taken to include cultural heritage such as historic buildings or aboriginal sites. Even if it was decided not to incorporate a full SIA in impact assessment in W.A., it would be desirable to empower the EPA to consider such heritage items which frequently form an integral part of the physical environment. Implementation of SIA would also require the inclusion of relevant expertise in both the Department of Conservation and Environment (DCE) and the EPA.

WHAT DECISIONS SHOULD BE SUBJECT TO EIA?

To be fully effective in protecting the environment, EIA should be applied to all decisions that might significantly harm it. These include:

i) Development projects such as factories, mines, housing, roads, railways, water and power supplies etc.

ii) Changes to extensive land uses such as from native vegetation to agriculture, native forest to pines, selective logging to clear felling, farm land to urban use, etc.

iii) Land management plans such as for State Forsts, National Parks, wetlands or the coastal zone.

iv) Land use plans such as town planning schemes, regional planning schemes, and statements of planning policy.

v) Programmes for maintenance of roads, water supplies and other works; for vermin and pest control; generic aspects of developments such as road construction; etc.

vi) Standards and regulations for such things as pollution control, bush fire protection, use and control of chemicals, transport of hazardous materials, control of off-road vehicles, etc.

It is also suggested frequently that Government policies and draft legislation should be subject to EIA, but it is not practicable to make these the subject of administrative procedures. Hollick (1981) suggested that scrutiny by an all-party Standing Parliamentary Committee might be more appropriate.

Clearly not every decision in the above categories requires full assessment. Attempts overseas to define rules to determine which ones are significant have not been successful and essentially ad-hoc decisions must be made. Relevant criteria to consider include:

i) the type and size of the proposed activity;

ii) the location in relation to sensitive environments, environmental hazards and important natural resources;

iii) the degree of controversiality of the proposal;

iv) relevant environmental standards;

v) whether or not planning for the proposal is adequately considering environmental factors;

vi) the seriousness of potential risks involved;

vii) the potential benefits of detailed assessment; and

viii) available time and resources.

There might be merit in having a public file of NOI's received, so that interest groups could express opinions on the need for full assessments in cases where there are no problems of confidentiality. The decision on the need for EIA should be an administrative one, with a minimum of Ministerial discretion in order to achieve some uniformity and equity.

EIA AND LAND USE PLANNING

It has already been suggested that Town Planning Schemes, Regional Plans, and Statements of Planning Policy should be subject to EIA. In a sense this is a negative provision, simply ensuring that the plans will not have unforeseen adverse environmental effects. Ideally, however, plans should be a positive factor in the maintenance and management of environmental quality.

For example, EIA is designed to handle large, relatively infrequent proposals, but the long-term cumulative effects of many small developments may have an equally significant effect on the environment. These can be controlled effectively through statutory planning and development control processes provided that the plans are based on environmental as well as social and economic data. On the other hand, EIA is still needed because large developments are hard to deal with by planning since they tend to have unique effects and the time and place of thier occurrence is hard to predict. Also, the planning and development control system may be essential to the success of EIA by protecting land uses such as noise buffer zones which are identified as being necessary in project assessment.

Regional plans can also be of great value in preparing EIA's by providing a comprehensive data bank on resources, environment, population, and economics as the context in which the proposed activity would be set. In the absence of such data, assessments are either inadequate, or each proponent has to gather his own, which is wasteful duplication of effort.

This discussion indicates that there needs to be a close relationship between the planning and EIA systems, but it is debatable whether or not it is necessary or desirable to combine the two as in New South Wales and South Australia. Major changes such as amalgamation of the EPA and Town Planning Board are disruptive in the short-term, and it is extremely hard to design a new system and to draft legislation which will work effectively. It may be better in the long-term to work more graduallay and to allow new arrangements to emerge from a number of minor changes over a period of time. At present, apparently desirable changes would include :

i) Broadening the objectives of planning and the nature and contents of Town Planning Schemes in the Town Planning and Development Act to give more emphasis to environmental and natural resource management aspects;

ii) Changes to the composition of the Town PLanning Board (TPB) to broaden its expertise, particularly by including EPA representation;

iii) Provisions for statutory regional planning to make such studies the legally enforceable basis of local schemes and to provide for public input;

iv) The formation of multi-discipline planning teams within the Town Planning Department;

v) Applying EIA procedures to draft plans;

vi) Clarifying the respective policy powers of the EPA and TPB, particularly with a view to producing joint policies on issues such as canal development, wetlands and the coastal zone;

vii) Improving mechanisms for amending plans in response to recommendations resulting from EIA;

viii) Ensuring development control powers are used to enforce environmental conditions where necessary;

ix) Using a single report instead of separate EIA and planning reports where both are required as for Jervoise Bay; and

x) The development of joint planning and EIA data bases.

THE NEED FOR STAGED ASSESSMENT

Many of the most controversial issues raised during public review of EIA's are matters of Government policy that the EPA is not competent to review, such as uranium mining or the export of natural gas. To the extent that these issues dominate attention to the exclusion of more relevant factors, this is counter-productive. As already mentioned above, it would not be appropriate for EIA procedures to be applied to policy matters, but there is a need for such issues to be carefully analysed and exposed to public scrutiny to test their strength and validity. This can probably be done best by a Parliamentary Committee, and if its hearings preceded EIA this would tend to minimise the attention paid to policy matters in comments on the ERMP.

Project planning is a convergent process in which general decisions are made on the basis of sketchy information, leading to progressiviely more specific decisions that require more and more detailed information. EIA, on the other hand, usually involves a single major report. If it is prepared early in planning, it cannot cover project details; but if it comes late, many decisions will aready have been made before public review which tends to cause frustration and confrontation.

This problem can be largly overcome by having a two stage assessment. An Environmental Feasibility Study could be undertaken alongside technical, economic, and financial feasibility studies, and made available for public review. At this stage a wide range of alternatives could be assessed on the basis of existing information. In some cases the EPA might then decide that final approval could be given, subject to certain conditions, or that it should oppose the project. In the majority of cases, however, it could give approval in principle to a particular alternative, subject to the submission of a detailed ERMP and to certain conditions being met.

Such a process would allow public participation in basic decisions on things such as the site and process to be used; would provide developers with an early indication of likely environmental constraints and requirements; need not take any longer, if properly organised; and need not cost more, particularly if cheap forms of reproduction of reports were used.

In his paper, Mr Porter has stated that there may be a need for a two stage process in which site or route selection occurs in the first stage, followed by a second stage when the project is actually undertaken. He implies that this is not necessary when the site is fixed by such things as an ore body or dam site. Even in these cases I can see merit in a two stage process in which the basic question of whether the development should proceed at all, and broader ranging options such as increased use of groundwater instead of a dam would be canvassed in stage one. This would give developers an early indication of whether or not the project was likely to be stopped for environmental reasons, and enable members of the public to express their views before there is substantial commitment to the project.

In Western Australia, developments subject to industry Agreement Acts form a special category. The agreements are negotiated between the developer and the government as described by Mr Hohnen on the bases of technical, economic, and financial feasibility studies, and are eventually ratified by Parliament. Although they are usually made subject to the preparation of an ERMP, the prior commitment of the government would make it extremely hard to stop a project for environmental reasons. The EIA is thus reduced to considering how best to manage the development and cannot effectively consider certain options, or whether it should proceed at all.

There are sound reasons for such early conclusion of agreements, but it is not sound practice on the part of the State to make such important decisions on partial information. Problems such as the Laporte waste disposal saga, the disposal of contaminated gypsum to Cockburn Sound, or the siting of red mud ponds in the headwaters of an important river might be avoided by requiring an environmental feasibility study before drawing up the agreement.* This need not cause any delays in the negotiations, and could save both the State and the developers time and money later by avoiding expensive problems.

THE NEED FOR MONITORING, REASSESSMENT AND ENFORCEMENT

Impact assessments are based on predictions of what will happen in the future which are riddled with uncertainties. In consequence, agreed management measures may prove to be ineffective or unnecessary, and totally unexpected effects may emerge which require remedial action. It is thus essential that the actual effects of the project be monitored to enable management to be adjusted in the light of findings.

Western Australia is a world-leader in recognising this need. This is reflected in the requirement for a Management Programme which must include monitoring project effects, reporting the results, and an undertaking to modify the management of the project in the light of the findings. Unfortunatley, as noted by Mr Porter in his paper, the EPA and DCE have few resources to undertake independent checks and have no powers to enforce environmental management conditions that have been agreed, or changes to management that are necessary in the light of findings. Indeed, the only recommendations of the EPA on an ERMP that are enforceable at law are those which become incorporated in conditions on licences issued under other legislation such as the Clean Air Act or the Rights in Water and Irrigation Act.

* The first two of these agreements were negotiated before EIA procedures were introduced.

For the EIA system to be effective, it is necessary for those conditions and recommendations which are accepted by Cabinet or agreed to by the EPA and developers to be incorporated into some form of legally binding licence or approval. There also needs to be mechanisms by which a reassessment of the project can be made and revised conditions arrived at when necessary. However, these legal powers will be worthless unless manpower is available to check the accuracy of the monitoring results and carry out the reassessments. This may not necessarily require an increase in DCE staff, as it may be possible to co-ordinate activities with officers of other relevant Departments. For example, inspectors form the Department of Mines could be given broader responsibilities and training to enable them to assess environmental aspects of mining operations; officers of the Department of Fisheries and Wildlife or the Forests Department could check flora and fauna aspects; and so on.

IS THERE A NEED FOR PUBLIC INQUIRIES?

Western Australia is extremely unusual in the western world in the paucity of opportunities it provides for public hearings or inquiries. It is now well accepted that written comments on ERMP's should be permitted, but this system does have a number of shortcomings which some form of public hearing process might alleviate.

Firstly, those making comments are forced to rely on the information that the proponent sees fit to include in the ERMP, and on what they can find out by their own research. It is probably rare for deliberately false material to be put in a report, but it is certainly not unknown for information to be deliberately left out, for data to be presented in a way that masks their true significance, and for promises of performance on environmental management to be made that are later 'found' to be unachievable. Experience overseas suggests that inquiries that can subpoena documents and cross examine witnesses are effective at uncovering information that was not previously available to decision makers.

A second problem with the present system is that those preparing comments have no way of knowing what comments other people will make, what responses the proponent will make to their comments, or what issues are of particular importance to the decision makers. Nor do they have an opportunity to comment on the comments. Forms of public hearing in which interactions can occur between the participants can be particularly valuable in resolving technical differences of opinion between experts and in clarifying the underlying value judgements of the different parties.

Thirdly, those who make comments generally have no way of knowing whether their comments have even been read, let alone understood. This is exacerbated by the tendency of proponents under the Commonwealth EIS procedures to give very brief, generally dismissive responses which do not deal with the substantive issues, and to make no significant changes to their proposals as a result. Some form of public hearing may help to avoid public disillusionment and frustration with the process, and to elicit genuine responses from proponents. However, even more important is early and thorough involvement in project planning, which is covered by Mr. Syme.

When an issue is particularly important and particularly controversial, in inquiry with the powers of a Royal Commission such as can be held under the Commonwealth legislation may be justified. An example of such a case in W.A. may have been the bauxite mining debate in 1978. However,

in the great majority of cases the time and cost of such an inquiry would not be justified. In this situation the simple'round-table' inquiry such as is used in New South Wales might be appropriate. Following the period for public submissions, all those who made substantial written comments (i.e. more than pro forma support or opposition) would be invited to a meeting chaired by a member of the EPA at which issues could be discussed in a relatively informal way without legal representation. Careful chairmanship would be needed as the process fell into disrepute with public interest groups in New South Wales due to the allegedly dictatorial habits of the chairman.

DUTY TO CONSIDER ENVIRONMENTAL FACTORS

At present there is no requirement for public servants or Ministers to take environmental factors or EPA recommendations into account in their decision-making. Also, in many cases they are required by enabling legislation to provide certain services at least cost, or are expected to promote certain types of development according to Government policy. Such 'mission-oriented' organisations are unlikely to give adequate weight to external environmental and social effects of their activities and the total well-being of the community may suffer as a result.

In many countries, government agencies have a statutory obligation to consider environmental factors along with technical and economic ones in their decision-making. The simplest way to do this in W.A. would be to add a suitable clause to the Environmental Protection Act, which is superior to all other Acts except Agreement Acts in the event of there being inconsistencies. Such a provision has the weakness that environmental factors can be 'considered' without giving them much or any weight in the decision. For this reason it might be desirable to go one step further and word the clause to the effect that EPA recommendations on proposals should normally be implemented unless there are over-riding reasons to the contrary.

THE RANGE OF ALTERNATIVES TO BE CONSIDERED

Most theorists argue that the EIA for a proposal should cover a wide range of alternatives, including no action and ones that are beyond the powers of the proponent to undertake. In practice, particularly in Australia, impact assessments tend to pay only lip service to this idea, dismissing all alternatives in a few pages and concentrating on detailed discussion of the preferred course of action. This is understandable in view of the convergent nature of project planning and the high cost of keeping many options open until an advanced stage of design, but it does nothing to improve the quality of public decisions. The result is that EIA becomes a useful tool for deciding how to manage a particular development, but not for choosing between different courses of action for achieving certain ends.

The staged assessment suggested above would help to alleviate this problem, and with such a system it would be possible to require proponents to give more attention to options without increasing costs unduly. Nevertheless, some reasonable bounds do need to be set to the range of alternatives considered. Clearly, it is pointless to ask private companies to consider options that are not feasible for them, such as making Alcoa include mining of Mitchell Plateau bauxite in its Wagerup ERMP, as some people suggested should have been done. Possible guidelines are:

i) where the proposal is for profitable development of a particular piece of land and is not tied to a particular resource or industry, the whole range of potential types of development should be explored.

ii) Ownership of a site for a particular development should not preclude consideration of alternative sites unless the development is associated with a local resource. Sites can often be sold, exchanged, or profitably developed for another purpose, and new sites can often be acquired.

iii) With regard to project details, a company should be expected to discuss alternative means of achieving its basic aims, including best available technology and best current practice as standards against which to measure its proposals.

The situation is similar in many respects for proposals by Government authorities. These usually have objectives that are defined and restricted by their enabling legislation, so they are not unlike private companies in having to provide a good or service at least cost. In other respects they should be unlike private companies - for example the MWB does not have to maximise returns to shareholders and can consider alternatives to new developments such as water conservation campaigns that would restrict its revenue. Also, Government authorities should be seen as parts of the total government organisation, rather than as completely independent enterprises. Thus they could be expected to consider alternatives which may be beyond their own powers to implement, but which are within the power of the government as a whole. For example, the SEC could consider ways to encourage energy conservation as an alternative to increased generating capacity, including such means as taxation incentives, grants and loans.

From the point of view of choosing between alternatives, there is no advantage in having more detailed information available on one than on the others. Indeed, the rationality of the choice is limited by the alternative on which the least amount of information is available, and thus concentrating on detailed description of one option is to some extent a waste of effort. In a staged assessment it should be possible to have equal treatment of a wide range of options in the Environmental Feasibility Study and equal treatment again of a far narrower range of options in the ERMP. It would also make sense in this context to delay preparing the management programme in detail until after the final choice of alternative has been made following review of the ERMP. However, it must be recognised that there is a very close relationship between the impacts of a proposal and the management programme for it so that it may not be feasible to separate the stages in this way.

THE RANGE OF FACTORS TO BE CONSIDERED

Guidelines for ERMP's which define the range of factors to be considered are normally worked out in discussions between the proponent and DCE. There is a tendency for these to be what the Americans call 'encyclopedic', including every issue that might conceivably be relevant. This is shown, for example, by the fact that the guidelines for the Jervoise Bay and North-West shelf ERMP's were almost identical despite the very different nature of the environments and proposals. In one or two cases, the latter report had a heading with no text after it because the issue was not relevant.

In the U.S.A., attempts are being made to avoid this happening in order to reduce the length and cost of EIS's by getting them to concentrate almost exclusively on those issues that will be relevant to decision-making. 'Scoping', or identification of the key issues to be addressed has become a significant early stage in the EIA process. It is difficult to do this well, and the following probably represents the minimum requirement:

i) Undertake the normal preliminary desk studies to determine the approximate characteristics of the proposal and the nature of the environment.

ii) Convene an expert workshop with members of the study team and relevant experts from Government Departments. The aim of this meeting should be to produce a rough diagrammatic system model of the proposal and its interactions with its environment; to identify the more important factors and linkages; and to identify gaps in information which need to be filled.

iii) Seek public input on what issues are likely to emerge as controversial and important to the public.

Such a process may produce a more 'focussed' ERMP that costs less, but it should be recognised that issues are quite likely to emerge later on which were unsuspected at the outset. For example, an aboriginal site of importance to anthropologists may only be discovered when the ground is actually broken at the site.

THE USE OF EVALUATION TECHNIQUES

Much work has been done to develop environmental evaluation techniques such as extended cost-benefit analysis, map overlays, matrices, checklists, etc., but they are seldom used because of methodological shortcomings and costs. I will not discuss these here as Mr. Thomas' paper will cover this ground. However, a number of points are pertinent:

i) No technique is entirely satisfactory and there are good reasons to believe that none ever will be.

ii) If EIA is to be used to help choose between alternative courses of action, then some form of evaluation is necessary to simplify the decision task.

iii) Evaluation techniques have different attributes and, if necessary more than one should be used for different aspects of the proposal. It is a mistake to try to force one technique to handle all issues.

iv) Sensitivity analysis should always be undertaken to determine the robustness of the conclusions.

v) Techniques should be chosen that are easy to understand and that facilitate communication of information and trade-offs to decision-makers.

TIMING

The delays purportedly caused by EIA are often raised as an argument against it, and certainly preparation and review of an ERMP can be a long drawn out business. However, what is of concern to the developer is not

the time taken by EIA as such, but the total time taken by all the steps in the approval process. This has led some countries, such as New Zealand to experiment with what they call 'fast-track' procedures. It is also of interest to note that some major developers in the U.K., where there are no EIA requirements, are routinely using EIA because they find it reduces the time necessary to gain all approvals by providing a single comprehensive information package.

For a major development, where site investigations of flora, fauna, hydrology, meteorology and so on have to be made, the minimum time to prepare an ERMP is something over 12 months in order to cover all seasonal variations. Where basic data are already available, much less time is needed. It is relatively rare for a major development to move from concept to execution in less than a year, so that in most cases preparation of the ERMP need not cause delays provided that environmental studies are begun at the outset along with technical and economic ones.

The delays of concern are thus the 'bureaucratic' ones of public review and assessment by the EPA. In most cases I believe the two month public review period is necessary and reasonable. However, if early and thorough public participation in planning occurs, as advocated by Mr Syme, it may be possible to reduce this because public opinion has already been incorporated to some extent, and interested members of the public will already be familiar with the project. In the case of staged assessments, preparation of the ERMP could continue during review of the Environmental Feasibility Study, and hence no time need be lost. The risk here is of having to write off some work if a significant reorientation of the project should occur after EFS review.

Delays following public review can be minimised through co-ordination of all relevant Government agencies. For example, at the end of the review period when the EPA makes its recommendations, all authorities should be ready to issue effluent discharge, air emission and other licences with appropriate conditions. No further consideration should be necessary. Similarly, local authority planning approvals should be co-ordinated so that the Council is also ready to make its decision immediately the EPA recommendations are made. This streamlining can be achieved through involvement of all relevant parties throughout planning, and perhaps could be encouraged by placing statutory responsibilities on developers to consult widely, and on approval authorities to grant their approvals within a certain time after the completion of the ERMP process.

CONCLUSIONS

The effectiveness of EIA in W.A. could be improved by:

i) Including social factors
ii) Applying it to a much wider range of types of proposal.
iii) Strengthening the links between EIA and land use planning.
iv) Using a two stage assessment process.
v) Making the management programmes legally enforceable and ensuring that resources are available for this.
vi) Providing for informal public hearings on proposals subject to EIA, and for formal public inquiries in important cases.
vii) Making it a duty of Ministers and Public Servants to consider environmental factors in their decisions.
viii) Widening the range and depth of discussion of alternatives in ERMP's.
ix) More carefully defining the factors to be covered by ERMP's.
x) Making more use of evaluation techniques.

REFERENCES

The issues raised here are discussed more fully in the following publications by the author:

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DISCUSSION

Q. MR. ALAN LAWSON

I wonder if Dr Hollick would care to comment on the following. If it were written into the brief or the legislation that binds all other statutory authorities, that their advice should also normally be accepted by the Government, I wonder then what situation would arise with the Minister who was charged with making a decision that represents the balance of community views as to whether he would normally accept the EPA advice, normally accept the Mines Department advice, normally accept the Treasury advice, normally accept the Social Department's advice. Would you please advise why we cannot accept that the Minister should be charged with the responsibility of making the decision which represents the balance of all the community's interest?

A. DR. HOLLICK

I think one point that needs to be made is that the decisions are not always made by Ministers. They are very often made by Departmental heads, or by officers even lower down in the Departments. We are talking perhaps not just about the major projects which are subject to impact assessment but all decisions. I think it should be a normal part of decision-making that the environment is a factor that is taken into account. Certainly, I take your point about whether EPA recommendations on an ERMP should normally be accepted in relation to other Departmental recommendations. I was looking at it somewhat one-eyedly from the environmental protection point of view. Also perhaps from the point of view that environment is a consideration which traditionally has not carried very much weight which should perhaps carry equal weight with technical and economic factors, and perhaps I saw it as a means to force the pace a little to get stronger consideration in some quarters where it isn't considered adequately now. But I take your point.

New Approaches to Environmental Assessment

Professor Des O'Connor
Foundation Professor of Environmental Studies,
Murdoch University

THE STATE OF PLAY

It is appropriate at this time and in this place to discuss Environmental Impact Assessment and procedures - appropriate at this time because the scientific apsects of environmental impact assessment are at a watershed in their development and in this place, because, although our State is much maligned in these matters, I believe the scoresheet looks better than most.

Since the last seminar conducted by the Department we have gained considerable experience and now have the advantage of speaking more from hindsight.

I would like to present a perspective on environmental assessment against the background of our recent experience, our track record in the intervening years, new and exciting developments in environmental science and on directions we might profitably take in the future.

We have already experienced almost a decade of Federal and State legislation, yet the attainment of environmental quality remains in many respects as elusive as ever.

For a concept so deeply rooted in the public mind, environmental quality remains strangely ill-defined.

A review of our experience with environmental procedures over the last decade more than confirms that no-one is happy with them:

> The public and conservation groups are unhappy because they feel the procedures do not go far enough, and that they are only introduced after a decision to proceed has been made.
>
> Legislators and administrators have difficulty in assessing genuine public attitudes and putting the ideas of scientists into practice. Many complex studies never seem to deliver the promised "facts" and often make decisions even more difficult.
>
> Miners and developers are unhappy because they do not always know where they stand and feel that the rules sometimes change along the way and that environmental decisions are not integrated into the planning process. There is unease that they may be being forced by regulatory authorities into studies that are more extensive than necessary, and that they might be being "ripped off" by consultants.
>
> Scientists and consultants are not happy because in the face of uncertainties in knowledge in environmental science they feel compelled to give opinions on the basis of inadequate information and get little preliminary guidance from regulatory authorities.

There is some truth in all of these attitudes, and if we are to move into more elaborate environmental protection programs it would be prudent to examine just what we have been doing before we move off in new directions.

PAST PERFORMANCE

The "tightening up" of environmental protection legislation is very topical at this time, and before we chart the way ahead it is useful to review the history of the last decade. It does not take a very critical examination to show that the best intentions of environmental impact assessment procedures have not been fully achieved. They have not been achieved for many reasons, most of which still apply:

Our goals and objectives were not clear
- lack of an ethical base for policy
- objectives - planning tool? - means of controlling growth and development? - environmental protection?

Environmental issues viewed in isolation from other risks and development imperatives in the community.

Emphasis on environmental quality through legislation
- focused on compliance at the expense of sound environmental management
- no enforcement or conflict resolution mechanisms

- unclear expectations of outcomes
- no yardstick to measure success
- led to polarization and an adversary approach.

Concentrated on the physical manifestations of impact at the expense of knowledge of the underlying processes.
- assumed that impacts could be measured
- assumed that we know what to measure, where, when and how
- assumed that data base and adequate ecological understanding was available or could be obtained.

Before we consider the status of some of these areas, it may be useful to consider Figure 1 which illustrates what I like to call a logical sequence of development planning in which environmental matters play their part. It is basic to the philosophy of this paper that undue emphasis is being given to the "Environmental Feasibility" aspects at the expense of the goals and policy elements on the left of the figure.

AN ENVIRONMENTAL ETHIC

John Black* in his book "The Dominion of Man", feels that if we delve into the philosophy of many conservationists, they fail under critical examination. Black fears there is as yet no fully worked out and satisfying philosophy of conservation, only what he calls a collection of generalities and catch phrases. He fears that if they prove to be rejected, they may leave us with another void resulting in further over-exploitation. Some feel that this is already starting to happen. I would like to join with Black in suggesting that one of the most pressing tasks facing us today (and I would like to include all of us here today) is to find an acceptable basis for responsible conduct, rather than over

* Black John. The Dominion of Man, Edinburgh University Press, 1970.

concentrating on administrative and institutional arrangements, or on new scientific fixes.

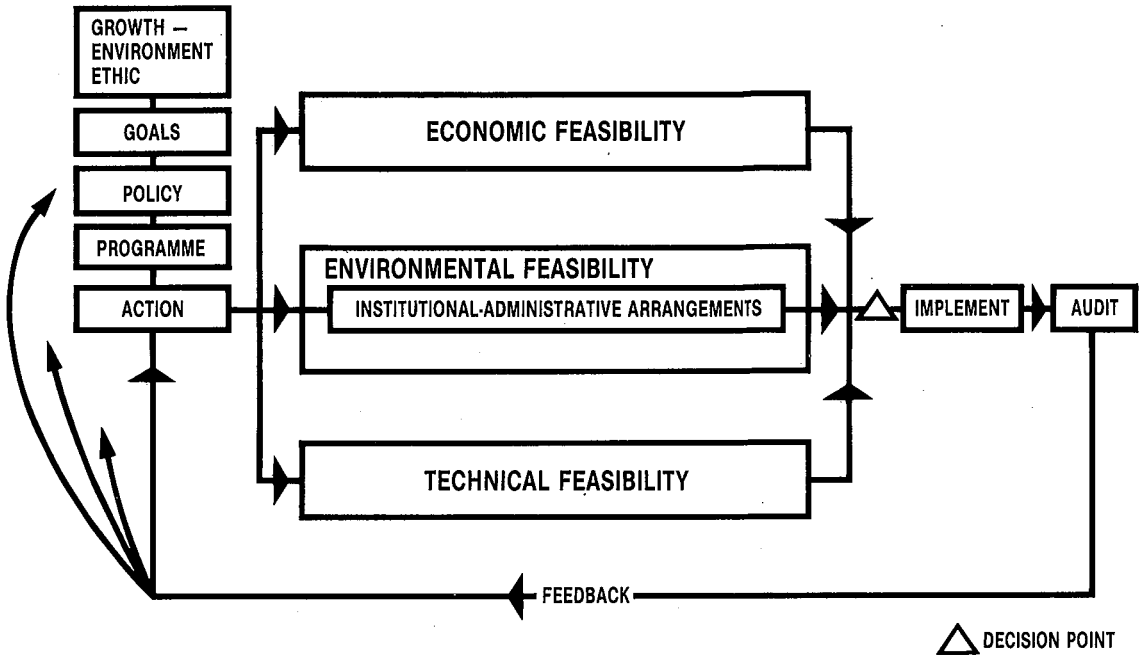

Figure 1. A Logical Sequence for Development Planning

Should we decide after today's deliberations to "tighten up our legislation", we might be well advised to consider some of Kelvin Willoughby's thoughts on the matter*. He makes the point that any piece of legislation reflects, either explicitly or implicitly, an ethical bias of some kind. Good environmental legislation should be firmly grounded in a viable and enlightened ethic of nature. Such an ethical basis should be consciously and explicitly articulated, to ensure that legislation doesn't become unworkable because of hidden contradictory assumptions.

The paramount question when identifying a sound ethical basis is whether we view "nature", on one hand, and "human society", on another, as distinct realms with a dichotomy between them, or whether we see them as different aspects of the same system. The former view leads to "conservation" and "development" being seen as opposed with continual "trade-offs" necessarily resulting. The latter view sees "conservation" and "development" as potentially mutually dependent activities. The former view appears to have dominated the debate in Australia to date, with the unproductive polarization between "conservationists" and "developmentalists" ensuing. There are signs that the latter view is now beginning to be taken seriously. If we intend to introduce changes to our legislation, I would hope that it would embrace this more realistic approach to the issue.

An ethic which portrays "Nature" and "human society" as complementary aspects of the same system needs to uphold two principles:

* Willoughby Kelvin, Private Communication, Murdoch University, July 1983.

that nature has intrinsic value;

and, that human development, and hence economic activity, has intrinsic value.

Both of these principles need to be incorporated into the rationale for legislation without diluting them into empty platitudes under the guise of a so-called "acceptable compromise".

The realism of these dual principles is vindicated by the insights of ecological science: nature, rather than being a static and pristine conglomeration, is a dynamic, evolving and open system which thrives on the complex interplay of countless species and communities, including human beings. It needs to be stressed, therefore, that acknowledging the intrinsic value of nature does not imply that nature is sacred in the sense of it being wrong for human beings to use it or intervene in its processes.

In practice it will only be possible to implement these principles if we go beyond the superficial conceptions of economic growth which have been so prevalent. We need to understand that growth is neither "good" nor "bad" per se. It is only meaningful to speak of growth if the following factors are specified:

the content of growth (ie. what it is that is growing);
the rate of growth;
the direction of growth;
the quality of growth.

To speak simply of "pro-growth" versus "anti-growth" or "zero growth" is nonsensical. The challenge, therefore, is to plan these four components of growth so as to ensure that the integrity of nature is maintained. Hence, the pivotal question for politics and planning is not whether or not we should proceed with industry, but what type of industry and technology it would be appropriate to adopt.

Nature should not be viewed simply as a pristine wilderness to be revered, nor only as a quarry to be exploited, despite the fact that these perspectives both contain elements of truth. An enlightened ethical basis for environmental legislation, which would also be consistent with our cultural heritage, would view nature as a fertile garden to be nurtured and cultivated by human beings. This ethic could be called ecological humanism.

Since we are so vitally concerned with our environmental future, it is useful to develop a perspective on how things reached the stage they have today.

Black tries to trace features of the western philosophy of life and what he calls its uncompromising treatment of the natural environment and its resources which led us to our present state of concern over ecological crisis. He sees the four most important aspects of our western world as:

The conviction that man's role on earth is to exploit the rest of nature to his own advantage.

An expectation of continuing population expansion.

A belief in progress and history, and

A concept for posterity.

He traces the origin of these points to the origins of our culture, and makes the very important point that ideas brought into being from any particular cultural source may persist even when, with the decline of the influence of religion, the source itself is no longer important or has been forgotten - ideas once assimilated acquire a momentum. He feels that many of our views incorporate many of the fundamental concepts of the Judao-Christian tradition - man moved from a position of integration within nature to one of domination over nature. This emerged from two processes, the development of the technical ability to modify the environment, and the desire to do it and to intervene in natural processes for the benefit of the human race. Black claims the book of Genesis has provided the essential clues to the way in which the relationship between man and nature developed in our culture, and it is still the central component of our world view today. The two key phrases in Genesis are:

"Have dominion over the earth and subdue it"
and
"Be fruitful and multiply"

There is no doubt that the driving motivation of dominion and multiplication have persisted and have intensified because they are somehow at the root of all environmental problems we are experiencing today. The question is how to evolve from this an environmental morality and an environmental ethic.

At first reading, it seems that man was set apart from nature. However, I believe it is wrong to immediately identify the idea of dominion over nature with the ideas of wasteful exploitation. It is to the credit of mankind, starting with the Hebrews, that they evolved a concept of responsibility for husbanding the earth's resources. There seems to be no doubt that the Hebrews believed that one prime reason for their presence on earth was to look after the earth and be responsible for the lower orders of creation the same way as God accepted the responsibility towards them. It is from this that a concept of stewardship and proper management emerged.

So a central part of our cultural tradition is the emergence of concepts of stewardship, responsibility, and accountability for the earth. This leads us on to the idea that we should not waste the things under our control and stewardship, and is basically compatible with what we might call today sound environmental managemement, leading to the interpretation that we should avoid letting things go to waste and provide wisely for future generations. This is another way of describing Willoughby's "ecological humanism".

This to me seems to provide the basis for an environmental ethic, a basis which is very largely lacking in most of the preservation philosophies of our time which are based on self-righteous or pragmatic approaches, depending on what side you happen to be on. If we are to generate any change in our attitudes to the way we handle our environment and provide for future generations, we have to have such an ethic as a basis for action in the legal and economic fields as we make the transition from a young to a mature society.

For an environmental ethic to provide an acceptable basis for responsible conduct, it must lead to a legal framework.

I hope my remarks today will make some contribution to updating our own legal arrangements, I must admit that I have only limited enthusiasm for what the law can achieve in environmental matters.

We all know that trying to come to grips with the problem via the law is not always effective. Law is essentially a coercive, abstract concept, whereas environmental degradatioan is a reality which requires for its solution systematic application of scientific and engineering skills within a broad framework of human values. Although we have certainly focused attention on problems today through environmental legislation, legislation in one form or another has been on the books for many decades, yet many of the environmental problems that we have today arose in spite of the presence of these laws.

I would like to put the proposition that we expected too much too soon from the formalised environmental protection procedures introduced by federal legislation in 1974. We adopted these procedures virtually intact from North America, but perhaps we should also look at the European situation where environmental impact assessment procedures tend to be grafted onto existing planning procedures, with low visibility and built-in provision to minimise the emotionalism and delays which have come to be associated with impact statement approach.

If the last ten years have proved anything around the world, it is that to be effective, environmental planning should arise from widespread public concern, rather than be arbitrarily imposed from above. I have tried to put this in perspective in Figure 2. It is fundamental that the process be seen as a whole.

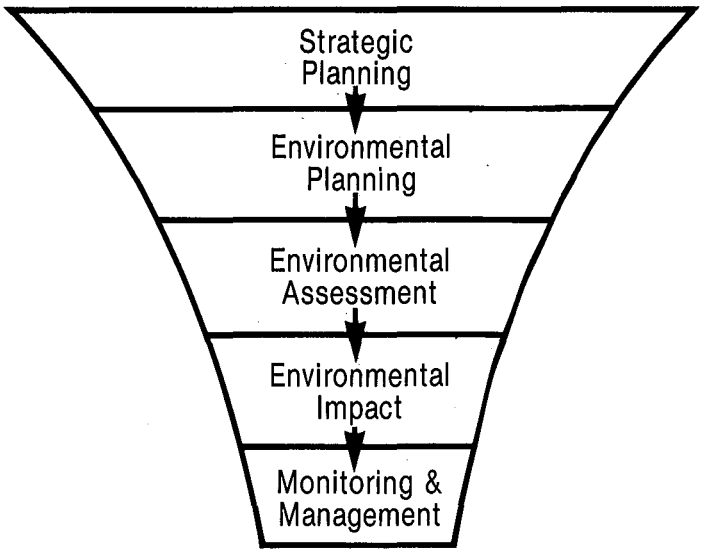

Figure 2. The Environmental Planning Process

Legislation is not enough. We need the participation of an informed public, and the operative word here is "informed".

It would indeed be heartening if the rising consciousness of the need for scientific and technological responsibility were matched by a corresponding sense of responsibility and awareness in the general public.

Lest I should be considered too unwilling to place all my faith in the law as a solution for environmental problems, I would like to take you back to the early 70's when our federal legislation was being launched. Firstly, Dr Cass at the Australian Academy of Science: *

> "You will see from these comments that the government does not regard the EIS technique as a miraculous panacea. Since it is impossible to legislate for wise decisions, we have preferred to make decision-makers and decision-takers - as well-informed as possible."
> .....
> "The other significant problem we see in the American system is the extent to which it permits the legal system to become involved. We hold the view that often the only benefit of permitting lawyers to become involved with the impact statement procedure will be to the bank accounts of the lawyers themselves. Our procedures will not provide for the courts to be a forum for environmental disputes."

Again, in Dr Cass' second reading speech: **

> "In developing the impact statement procedure we have noted difficulties that have accompanied its use in the United States. These have largely stemmed from mandatory requirements for statements and from procedures which result in too frequent a resort to the courts. We hope to avoid these difficulties, firstly by making the impact statement requirements discretionary so that we can concentrate on the most significant proposals and, secondly by incorporating the requirements into the normal process of governmental decision making."

Calvert also commented*** on the role of the legal system:

> "We have also attempted to strike this balance between our demands and the resources available by not encouraging the intervention of the legal system. We believe that in the case of the United States too frequent a resort to the Courts has created real difficulties for the operation of the system in that country. The Australian Government's procedures are designed to direct the consideration of environmental aspects into the normal decision-making channels rather than into the courts. The existence of the Act will, of course, provide greater opportunity for intervention through the courts than existed prior to its introduction but we intend that this will be the exception rather than the rule."

* Cass Dr Moss, "Environmental Impact Statements and the Australian Government." Keynote Address Australian Academy of Science, 29 Nov 1974.

** Cass Dr Moss, Second Reading speech, Environment Protection (Impact of Proposals) Bill. Hansard 3178 Senate 5 December 1974.

*** Calvert R.G., "Environmental Impact Studies", Australian Water and Wastewater Association Summer School Canberra, 5 Feb 1975.

H.J. Higgs* had this to say:

> "In emphasising the necessity for an adequate framework of environmental law, I am not assuming that the law would be a panacea. It would merely provide a framework for sound planning. It could not be relied upon by itself to ensure the attainment of desirable goals. Nor do I see the courts as having an extensive role to play in the interpretation and application of statute law dealing with environmental planning. Courts are generally ill-equipped and no doubt unwilling to be environmental decision makers."

With these early cautions in mind it seems that we would be well advised not to pursue the legislative path to the exclusion of all others.

Up to now I have not extended much hope for a solution to our problems via legislation alone, so it is only reasonable to look at what environmental science offers as an alternative. It is unfortunately true to say that today environmental science is rarely able to provide all the quantitative information interpretations and predictions needed by society to solve its problems.

Whilst we have a long way to go in extending our knowledge of environmental science, and although the environment is diverse and complex, we are moving towards the stage where we can look at large scale environmental problems and partition and simplify them so that the parts may be studied as the basis for understanding the larger systems.

What is the state-of-the-art in the measurement of environmental impacts?

THE TECHNOLOGY FOR MEASURING ENVIRONMENTAL IMPACTS

Firstly, the technology of estimating environmental impacts should be considered. At best this can be said to be patchy. In the area of air pollution and the transport and diffusion of some airborne pollutants and aerosols, the state of the art is fair. The same can be said of water pollution with the possible exception of toxicities and toxicity limits. Where the state of the art is notoriously weak is in measuring impact on biological populations. There is very little practical experience in this field which is adequately backed by theoretical knowledge. Mostly in estimating the impact of some activity on the environment, population counts are chosen as the indicator to measure in the field. However, our current level of ecological systems knowledge and the state of ecological measuring technology are inadequate at this time to enable such counts to be definitively related to ecological health and vigour, and there is a great void in the information of the relationship between stress and resilience in Australian ecosystems. The inclusion of extensive yet often meaningless accumulations of biological data in impact assessments gives the illusion of security and results in measuring just about everything to be on the safe side. Populations are difficult to measure within sufficient precision to enable fine changes of status to be confirmed, and this can lead to more extensive field programmes on the illusion that the problem can be swamped with numbers.

Changes in species numbers are difficult to incorporate into the decision making process unless the species is regarded as rare or endangered or has some economic value where changes in numbers can be considered to have some economic consequence, such as in the case of the prawn or crayfish industry.

* Higgs H, "An Administrator's View of Environmental Law"

A decline in numbers from some pre-development baseline may be quite meaningless unless a very profound understanding of the significance of population levels exists - an unusual circumstance in Australian ecosystems.

WHAT, WHERE, WHEN AND HOW TO SAMPLE

The choice of what to sample presents many problems. The easy solution would be to measure everything, but limitations of time and money and a lack of complete understanding of the complexities of the biological systems involved call for a focusing of effort onto key ecological indicators. We would like to think that measuring and monitoring and the resultant feedback provides us with information which enables us to learn as we go and provides lessons for subsequent environmental management programmes.

We are also faced with uncertainties in knowing where to sample for a particular manifestation of an environmental impact. It is usually preferable to sample at locations where the environmental effects are likely to be greatest and where changes are likely to be detected. However this calls for quite a deep insight into the way a phenomenon is behaving and changing. Sometimes there are local variations quite unrelated to the particular stress being placed upon a system by a project, and it is difficult to select typical sites to minimise local effects.

There are also uncertainties in knowing when to sample a particular parameter. Usually in the remote locations where development is proposed, it is difficult to monitor many items coninuously, so a sampling programme has to be undertaken on an irregular basis. It is important to select sampling times based on as thorough knowledge as possible of the system parameters being sampled. Items like atmospheric and meteorological parameters may be measured continuously without a great deal of trouble, but this does not apply to toxicity concentrations, dust levels, and population parameters in plants and animals.

We are also faced with uncertainties in knowing just how to sample. Today our concepts of what constitute environmental hazards are related to the state-of-the-art in measuring capability, and there is no doubt that as our measuring capabilities improve, so our understanding of what constitute environmental hazards will broaden. This makes the setting of acceptable levels of risk and the related measuring techniques very difficult to decide, and places scientists and consultants in the difficult position of having to bid on studies which cannot be fully defined at the outset and which may involve a large element of research.

LACK OF DATA

When considering the data base on which reliable impact assessments depend, it is true to say that reliable information on ecosystems and environments is largely lacking for most of Australia, particularly in remote areas such as those in which most development activities take place. A redirection of effort in national biological data collection survey and incorporation of the results in a data bank should be given high priority by government if it is to continue insisting on environmental programs as part of the development cycle.

SOME TECHNICAL DEFICIENCIES IN OUR PRESENT APPROACH

Looking back over the last few years we can now say that meaningful environmental impact statements really depend on having the capacity to measure changes in carefully selected indicator elements in an ecological system. Methods based on extensive listing of environmental parameters have not proved to be really useful because:

Much of the data collected makes little contribution to the impact assessment.

Date acquisition, synthesis and interpretation is rarely based on an understanding of the ecological systems involved. Such understanding is largely lacking for most Australian ecological systems.

Studies have not involved the key environmental elements. These are difficult to define and often do not appear until well into a project's life.

Broad quantitative estimates of environmental impact only serve to confuse decision-makers and never seem to really clarify the issues.

Are there any new prosepcts in the offing to help overcome these deficiencies?

A NEW APPROACH

I would suggest that two very exciting new areas are likely to dominate the practice of environmental science in the years ahead, environmental risk assessment* and adaptive environmental assessment and management.*

The credibility of these approaches has, of course, to be established in the local context, and there will be a time lag in our institutional and administrative arrangements, and in the emergence of the necessary skills.

We need to reshape our thinkinig before we launch into reviews of our present legislation. We should see the impact assessment process as yet another of the broad quality of life issues which confront us today. They are seldom capable of being expressed in legal terms or in a purely objective way with absolute certainty. When in doubt we have accepted an all or nothing approach rather than a graded response based on acceptable levels of risk.

PUTTING ENVIRONMENTAL RISKS IN PERSPECTIVE

Our response to environmental risk has been, and to a large extent remains, in a highly disorganised state. There is a high degree of irrationality in our approach to risk-taking in general. This is not to say that environmental risks can be assessed and explained easily,

* These references are valuable reading for those interested in these areas: Whyte A V and Burton I, Environmental Risk Assessment. (Scope 15), John Wiley & Sons, NY 1980.
Kunreuther H C and Ley E V The Risk Analysis Controversy - An Institutional Perspective, Springer-Verlag, Berlin 1982.
Holling C S (ed), Adaptive Environmental Assessment and Management (Wiley II ASA International Series on Applied Systems Analysis: 3) John Wiley & Sons, NY 1978.

because they involve many conflicting issues. Nevertheless, for the purposes of our discussion today it is submitted that we should not go too far until our approach to environmental risk assessment has been sorted out and agreed upon by regulatory agencies, affected industries, and the general public.

This will not remove environmental risks and resulting conflicts, but conflict resolution should be placed on a more rational basis.

I am not going to suggest that it will be immediately possible to adopt a risk assessment approach in environmental affairs*, but I am suggesting that we should move in this direction if we are going to "tighten up" regulatory procedures. There remains a considerable amount of research to be done before all the necessary knowledge is available, so we should ask would the adoption of an environmental risk assessment approach change our current approach to environmental problems? I believe so. The major effect would be that conflicts would be resolved as a balancing and trade-off process between what is desired and what can be reasonably achieved within a broad framework of social and economic goals, presuming of course that we can agree on such goals. This of course assumes that a conflict resolution mechanism is set up as part of our review. The important thing to realize is that it does not involve the question of zero risk or even minimum risk. Rather it proposes the adoption of an acceptable level of risk based on a knowledge of the risks and how they are to be managed. It suggests a flexible approach with acceptable levels of risk built in. Our past experience with environmental protection methods has given birth to the myth that if we study something for long enough we can eliminate uncertainty, and this has led to pressure to defer action until everything is known. I think we should formulate an acceptable level or risk, and stop data collection at a decision point based on professional judgment. There will be an element of uncertainty but we have always lived with uncertainty and managed to prosper. Zero risk means zero action which means, in turn, zero innovation.

As a community we should seek answers to the following questions as we look to altering our administrative and institutional arrangements.

What environmental risks are we willing to accept?

What degree of certainty is sufficient?

and

What are we willing to pay for it?

It is one of the paradoxes of modern society that we are prepared to accept risks and uncertainties in all aspects of our everyday life but not with respect to the environment. I suggest that we review our total approach to environmental affairs and in particular to environmental impact assessment and monitoring to reappraise them in terms of environmental risk management. We have had enough experience with legislation to progressively embark on this. In this rapidly emerging field the term risk assessment came into being to differentiate a new type of assessment from the earlier impact studies. The earlier studies did not focus on the conditional or probabilistic aspects of an event.

* Reference is again made to Kunreuther and Ley, op. cit.

They tended to regard events as reasonably certain to occur and resulted in either over-conservative decisions or neglect of environmental matters altogether. Risk assessment is concerned with an attitude to events which may possibly occur.

ENVIRONMENTAL RISKS TODAY

It is very difficult for the layman to comprehend the situation which exists today. In the face of burgeoning technology, we seem to have the inescapable accompaniment of a multiplication of environmental problems. It is a tremendous task for the layman to decide just where we are today in the face of the great and growing volume of errors of fact which find their way into the media concerning environmental matters. This is a very serious problem, and one which is becoming a major obstacle to the formation of sound public policies on environmental affairs. Eminent experts hold opposing views and seem driven to obtain the maximum publicity for them.

Why is it that experts disagree on such matters? Why should there be endless controversies over such products as lead and asbestos whose effects on health have been known for years? Are people being irresponsible or is there something about these problems that just naturally generates confusion? How can we gauge the public's willingness to accept risks?

If we are to make a contribution to the development of criteria for environmental quality, it is vital that the public attitude to environmental risk-taking be understood so that we can get on with the business of developing our country without the endless bickering and argument that seems to surround development proposals today. What is involved in the judgment of environmental quality? There is an urgent need to explore this before we are faced with ever tightening control and over-regulation. It seems that environmental quality itself is not directly measurable, but I am suggesting that we assess the risks so that when we weigh these on the balance of social values and public aspirations, an acceptable level of environmental quality can be judged and defined. It seems that we must define environmental quality in terms of the environmental risks that are judged to be acceptable both by the people at large and by regulatory authorities which purport to represent the people.

This is a broader definition of risks than that which is normally associated with environmental impacts where the concept of zero risk seems to be generally taken for granted. But nothing can be absolutely free from risk. Almost any intervention in the environment by one group in society, can under the right circumstances adversely affect the rights of others by causing environmental damage. Because nothing can be absolutely free from risk we must acknowledge that there are degrees of risk and consequently there will be degrees of acceptability of risk. As a basis for environmental quality judgment, this leads us to two activities - measuring risks, and judging the acceptability of risks. The first hopefully can be an objective and probabilistic activity whilst the second has a high element of value judgment.

Before we set out to influence the future direction of environmental impact assessment and related legislation, we should concern ourselves with developing an appreciation of the attitudes involved in the acceptability or non-acceptability of the risks perceived to be associated with various aspects of the environment. Failure to

understand the difference between these two activities, that is the measuring and judging, is today at the root of many environmental misunderstandings. Just as the early adoption of environmental impact assessment procedures was somewhat erroneously based on the suppositions that the technological and information data bases existed for impacts to be measured and defined, so I can see that the intensification of environmental protection procedures will also give rise to false expectations on the assumption that scientists can measure and define when some action is environmentally safe. They cannot, of course, because the methods of science can only assess probabilities and likely consequences, and certainly not the subjective attitudes of people. So we should not expect that environmental legislation per se will guarantee the attainment of environmental quality.

Rather, if wisely pursued it should enable some of the risks to be defined and measured, providing the basic environmental systems-understanding is present, but it certainly will not lead on automatically to the formulation of the public acceptability or otherwise of that risk.

So at the outset it is necessary to go into any environmental protection programme fully understanding what it can achieve for us, and what it can not. A scientific programme providing the right things are measured, can assess, to varying extents, the probability of environmental damage and is based on a fairly empirical scientific activity. However it should be stressed that judging the acceptability of the risks involved is a highly subjective activity and we should keep this distinction uppermost in our minds.

It is timely to consider these matters in relation to changes in environmental legislation likely to be enacted in the near future. It goes without saying that we would be much further along the road today in terms of general environmental impact assessment if we had realised at the start in the early 70's that the elusive goal of environmental quality is relativistic and judgmental and is not an absolutely measurable quantity of any situation. It is proposed that future environmental quality criteria and the related legislative procedures be related to an acceptable level of risk. An appreciation of what makes people accept risk should enable legislators to better approach the problem of defining a level or risk that might be acceptable.

PUBLIC PERCEPTION OF RISK

That disquiet exists in the public mind about environmental problems is beyond doubt. Many people believe that they are running the risk of being destroyed by the very technology which is improving their own standards of living, and this has become a concern to a great many individuals, governments and international organisations and is standing in the way of the formulation and implementation of sound environmental policies. We are constantly being told that the world ecology is under threat. I think a good case could be made that traditional ecology has, by and large, overlooked the larger problem of the relation of man to this environment, preferring to concentrate on the simpler case of animals and plants.

One of the greatest causes of disquiet for the layman relates to attempts to change the environment by the introduction of new processes which all too often seem to be introduced without adequate knowledge of their possible long-term effects. It is the attitude of the public towards such changes that we must examine if we are to develop environmental policies which will be widely accepted.

Increasingly rigid monitoring programmes imposed by regulatory agencies are unlikely to remove this unease unless industries and developers bring about a public appreciation and acceptance of the environmental hazards of their acvitivies in relation to the broad field of community risks, and unless we have workable enforcement procedures.

Between the two activities of measuring risk and judging what is acceptable we have to steer a very delicate course. We must realise the difficulties of scientists who are attempting to look for more objective ways of appraising society's willingness to accept risks, and at the same time understand the position of politicians and policy makers who have to deal with so many controversial "facts" that never seem to possess the clarity promised in long drawn-out studies and reports.

Caution should also be given that environmental risks are not always easy to identify and monitor, and often they cannot be measured precisely. It seems that the focus of environmental activity in the future could well lie in the area of environmental risk management. Decisions will continue to be made under conditions of risk and uncertainty, so risk management will become central in the environmental management process. The search will be for development compatible with environmental quality, minimising undesirable side effects, and minimising risks to acceptable levels. This will place a great stress on knowing what is actually going on in the complex natural environment. We can expect a swing away from the current approach to environmental problems to one based on broad ecological systems understanding.

NEW TECHNIQUES OF ENVIRONMENTAL IMPACT ASSESSMENT

In the past development programmes were based largely on intuition, and it is true to say that we have learned many painful lessons. This led to a more formalised approach to environmental decision-making based on the environmental impact assessment studies. Because many of these studies are based on large amounts of data it is assumed they will be inherently more reliable than estimates based on intuition. This is not proving to be always the case because the environmental world is complex and it is impossible to record all its features. Simplification is necesary and inconspicuous but important items may be overlooked in assessment and in monitoring.

The current static procedures overlook the fact that ecosystems are in a constant state of change and fluctuation, even in the absence of human intervention. The present technique of one-off static surveys may miss these natural changes. Also assessing the impact of human activities is often difficult. We have a complex interplay of environmental and social systems, and the features of the latter are difficult to define and to reconcile with the natural environmental factors, which raises the point as to whether socio-economic factors belong in an environmental impact assessment rather than in a broad planning strategy.

It is my belief that it is not possible to work from the part to the whole by incorporating piecemeal socio-economic studies in environmental impact studies.

Environmental systems are full of uncertainties and these are not always detected by the scientist doing a study for the purposes of an environmental impact assessment. It is not surprising, then, that the accent is going off environmental impact analysis as we currently know it, and that we are seeking new approaches based on a fundamental understanding of the structure and dynamics of ecosystems. This should sweep away some of our past asssumptions.

It is being realised that ecosystems are not always fragile and that it may not be necessary to study all components of the environment before one can evaluate the impact of a project on the behaviour of ecological systems. Also, we are realising that ecosystems have resilience, and any idea of a static balance in ecosystems is often entirely incorrect. A new approach would be to direct our environmental studies towards documenting the relationship between stress and resilience in ecological systems. It should be a positive approach and initial studies and subsequent environmental monitoring should be designed to show how ecological understanding can be used to improve management and guide development. However, understanding only advances by careful sampling combined with ecological system model building because we are fundamentally interested in the dynamics of ecosystems.

ADAPTIVE ENVIRONMENTAL MANAGEMENT

Anyone interested in the complex area of environmental impact assessment would be well advised to study Holling's foundation work on the subject.*

We should seek to express in our legislation what he describes as an adaptive environmental management policy which integrates environmental understanding from the very beginning and continues through the life of the project. We have a sound basis for this already in our environmental review and management programme. Our past approach has largely reacted to development rather than anticipated and guided it. Our approach was always piecemeal, dealing project by project. This could be called reactive assessment. There is a tendency to measure everything to eliminate risk, and what we get are indigestible volumes of material, indicating that too much time is spent on measuring what is rather than predicting what might be under the influence of the project.

Appraisals of the status of the environmental impact process in the United States** have agreed that the procedures suffer from excessive levels of generality, and inability to identify and quantify risks and impacts, particularly secondary impacts.

Over the last few years I have had the opportunity of reading every ERMP prepared in this State, and my overall impression confirms the foregoing remarks. I have not kept statistics, but I would be surprised if more than 10-15% of the average ERMP related to actual impacts. I have seen one ERMP containing projected scenarios of what the situation might look like 50-100 years in the future. I always had the impression that this was what is was all about.

We would be well advised to benefit from this experience, and the basic issue is how to plan in the face of the unknown and select ecological variables which, when measured in a monitoring programme, give some indication of how the system is performing and is likely to perform in the future under the proposed stresses. Our new approach should be based on a total appraisal of the ecological system in an area rather than meaningless accumulations of data relating to isolated parts of it.

The essential task in an environmental programme is to abstract the essential properties of the systems involved and to represent them in a

*Hollings, C.S. (ed) op. cit.

** Canter L W, Environmental Impact Assessment. (McGraw-Hill series in Water Resources and Environmental Engineering) McGraw-Hill Book Company, NY 1977.

model, even a conceptual model, which highlights the system behaviour under the stresses likely to be encountered. The relationships between elements of an ecological system are more important to measure than mere inventories and numbers, and changes in key indicators may propogate impacts through the system.

Although this may not eliminate all problems, it should make them easier to bound and manage.

A bottleneck in the realisation of this approach is the state-of-the-art in predictive systems ecology and in the technology for measuring ecological impacts. There are great challenges for researchers in these areas.

ENVIRONMENTAL MONITORING

Since we are likely to continue having difficulty in making reliable predictions, certainly in the near future, this has placed more and more emphasis on a realistic and flexible system of monitoring and feedback so that intervention in the processes can be achieved at any time through a project's life.

The idea of environmental modelling is very useful as a basis for monitoring. Control techniques which rely on monitoring of results to trigger corrective action (feedback control) are unable to respond to problems until after they have occurred. In order to prevent problems it is necessary to monitor the input variables and predict the system's response to them. If the forecast results are unsatisfactory it may be possible to take corrective action in advance (Feedforward control) and avoid the problem. Predicting system performance requires the use of a model. The model may be empirical, theoretical, or partly both, but in any event it relates outputs to inputs with some degree of accuracy. For any given set of input data the difference between predicted and actual results is an error. These errors may be subject to problem analysis. The cause can be found and corrected or accounted for then the model can be made more accurate. Therefore monitoring of input and output data can be used to progressively improve the accuracy of the predictions as well as to avoid the predicted problems.

Although I am enthusiastic about the application of the systems approach, I do not wish to convey the impression of being in favour of a complex mathematical approach to environmental decision-making. Rather, it is my opinion that at this time we would be well advised to avoid an over-formalised mathematical approach to the modelling of any systems involving biological organisms, certainly until our systems knowledge expands. At this stage we are particularly in need of conceptual models so that we can find our way into the systems approach in such a way that decisions can continue to be made but performance can be upgraded as knowledge grows.

There seem to be many reasons for coming round to the idea that it makes common sense to shift environmental impact assessment from its traditional role towards a life-cycle environmental risk management approach by continuing audit and monitoring activities right through the life of a project.

What does this offer as a basis for future action?

SUGGESTIONS FOR THE FUTURE

At the beginning of this paper I listed a number of sources of disquiet amongst the various interest groups in our community. It may be appropriate to make some suggestions on how these groups can focus their ideas in more effective ways.

The Public

Develop an ethical basis for their concern.

Put environmental risks in perspective.

Develop a realistic set of expectations about what legislation might achieve.

Realise that the solution to environmental problems does not lie in legislation alone, except insofar as this mirrors society's ethical concern.

Legislators and Administrators

Develop an ethical base for legislative programmes.

Work towards measuring environmental risks and assessing their acceptability.

Devise an institutional mechanism to resolve environmental and land use conflicts - integrate environmental decisions into the total planning process.

Define acceptable levels of risk.

Move away from one-off environmental impact assessment to an adaptive approach based on life-cycle environmental management.

Define a firm set of objectives, with unchanging guidelines and criteria for measuring success.

Shift emphasis from risk elimination to risk management.

Be aware of inherent limitations in the state-of-the-art in predictive ecology and ecological measurement technology so that the impossible will not be requested.

Coordinate state and national data collection to support development programmes.

Remove the socio-economic factors from the environmental impact assessment and make them part of the State's broad strategic planning.

Miners and Developers

Integrate environmental management into their general operations.

Take a more active role in putting the relevant environmental risks into perspective with the general public.

Take more initiative in setting up environmental management and monitoring programmes - do not wait for government.

Before consultants are called in, block out the basic elements of the problem internally and retain managerial involvement throughout so that the programme will achieve what is expected of it, thereby avoiding "rip-off".

Make sure environmental monitoring programmes answer the purpose for which they are devised.

Scientists and Consultants

Move away from the present approach of extensive static descriptive lists and surveys to data acquisition, synthesis and interpretation based on dynamic ecological systems understanding and quantitative methods.

Try to identify the key environmental indicators and develop an appreciation of the uncertainties in the relationships between stress and resilience as a basis for impact assessment.

Do not collect large amounts of data in the hope of eliminating uncertainty.

Adopt a "new look" impact assessment based on presentation of a total, integrated environmental appraisal, stressing interrelationships and system behaviour;.

As a means of presenting results, develop scenarios projecting the systems under stress into the future.

CONCLUSION

It is quite clear that after nearly a decade of experience, a more realistic approach to the pursuit of environmental quality is essential if we are to proceed with logical and orderly development of our country. Regulatory procedures should be seen as complementing a conflict resolution mechanism. Environment should not be viewed in isolation but as one of the quality of life issues which we will have to learn to cope with as a mature society.

In the flow of events depicted in Figure 1 the main centre of environmental action was pinpointed on the administrative and institutional arrangements and this has resulted in community polarity, politicization of issues, undue attention to legal compliance at the expense of ecological understanding, and delays in our national life.

Unless we are very careful a premature rush into mathematical ecology might well substitute a more sophisticated level of confusion for the one we have now unless we do it with an understanding of what we are trying to achieve and how it can be evaluated. I can never foresee decisions being made solely on the basis of model output because many factors, (many intangible) go into an environmental decision. There is an escalating need to improve the quality of our decisions and to put them on a more rational basis. This is the value I see in the methods of quantitative ecology and risk assessment.

"Tighten up" our legislation and give it "teeth" by all means but we should be cautious lest it simply result in a transfer of the confusion of the 70's further to the right of Figure 1 instead of focusing attention on the upper left where all rational and workable programmes must have their origins. If the obstruction and delay normally associated with planning becomes a feature of environmental procedures, they will fall into disfavour and be circumvented.

Just as Moss Cass highlighted the transitional nature of the procedures he was introducing, we must have reasonable expectations of what legislation can do for us and provide what must amount to another set of interim guidelines, albeit better than the old ones, until a rising tide of public awareness and responsibility make them largely unnecessary.

DISCUSSION

Q. MR. HARRY BUTLER (Consultant)

Professor O'Connor, you talk about a decade in business; well in two decades we've gone full cycle to accept your philosophy. It becomes a very subjective thing to assess whether an impact of a development is within the make-and-break relationship of the ecosystem or not. When such submissions have been made to the EPA in the past, two things have happened. One - it has been rejected out of hand as being totally subjective. Two - a set of guidelines has been given in which it has been said that there aren't enough hard lists to be checked against by our people. I think your last remarks about putting our house in order, should be taken with more than one grain of salt.

A. PROFESSOR O'CONNOR

Not quite so. I think if you read the foreword to the latest report of the Environmental Protection Authority, it acknowledges that we have made gains in the last seven or eight years and it acknowledges also that as our knowledge of Australian ecosystems increases and improves, we will move more away from the descriptive listing type of approach into a broader systems approach. I think we are now attuned to it.

Q. MR BOB CAMERON (Layman)

Professor O'Connor said I wasn't allowed to ask him a question. Seeing initials are being thrown around, I represent MITS - "man in the street"; My question is (and I go along with Des' concept of finding new standards) who's going to be God? Who's going to set these ethical standards and who's going to establish the correct amount of air pollution etc?

A. PROFESSOR O'CONNOR

Now that's a difficult one to answer and perhaps the reason why it remains largely unaddressed. I think you've got to look at us as a nation and it would be difficult to say that as a nation, as a people, we have an intimate relationship with our environment. Yet we are trying to solve the problems by addressing it through legislation and other things. I think we've got to start in the education system. We've got to start in schools. We've made a start in the universities now, but it has to come up through the schools.

I don't believe there's any instant anwswer and there are no heavies waiting in the wings to come out and solve it for us. I think we've got to change our whole attitude and the benefit of that, as I see it, is that a lot of the regulatory procedures will then tend to become, as I mentioned, largely unnecessary.

Conservationist's Viewpoint

Mr Peter Johnson
(Senior Lecturer in Law University of W.A.)
Conservation Council of W.A. (Inc.)

Let me start with a number of observations of a philosphical nature, but which I would see as fundamental to any discussion of a process of environmental assessment. I make these points at the outset because unless the purposes and intentions behind any environmental legislation, whether existing or proposed, are kept clearly in mind, it is useless to spend time and words on discussing the technical mechanisms of assessment in isolation.

The first proposition is this: the legislation itself, when all its terms are taken into account, provides an important index of the relative importance that governments attach to public input. The extent to which the procedures allow public access to the process of forming a decision on environmental matters, including the timing at which such input is allowed, must be measured, relatively, against the opportunities the legislation provides for internal government input and representation of commercial proponents.

Whilst I am not a social psychologist, I think I would be correct when I say that if any proposed legislation places strict limits on public opportunities (as arguably the existing legislation in this State does) the Parliament, including both government and opposition members, should not be surprised if responsible non-governmental organisations are less than enthusiastic, or even condemnatory, about it.

The second point to be made is this: even if, on its terms, revised legislation does ostensibly allow greater public input at the formative stages of environmental decision making, it will be meaningless and taken to be meaningless, unless there are proper avenues of review.

Most people will readily appreciate that, as a matter of cosmetics, an Act may appear to provide adequate opportunities for comment, but what really matters is how it is <u>administered</u>. An Act may be full of significant powers and discretions, but in the end its effectiveness depends on whether those charged with its execution are required to meet clear and specific requirements set forth in the legislation.

I should say, that in calling for a system whereby the administrators <u>may</u> be called to account, the Conservation Council, as any responsible body would, does not suggest that there be a right of veto in the public hands. It accepts that ultimately decisions about development and the environment lie within political responsibility. What is sought, however, is recognition of the fact that in a democratic society there should be proper avenues for public involvement which cannot be easily ignored.

Thus, in order to have a system which, in our submission, provides adequate and fair opportunities for public input, we would see as basic to any new environmental legislation the following features.

1. <u>A right to know</u> about proposals and their possible environmental impact. Of course, for this right to have any reality, it presupposes knowledge at a reasonable time to take action.

2. A right to be informed.
This is not the same as the right to know. Let me supply an illustration. By publicising a Notice Of Intent at an early stage the right to know can be satisfied. But concerned groups, in order to comment, must be assured of access to information in order to make meaningful comments. Here again the claim to information is not unqualified. It is recognised that there must be aspects of confidentiality, but claims to confidentiality should be exceptional rather than normal, and mechanisms can be devised to ensure confidentiality is not abused.

3. A right to be heard and,

4. A right to object.

These are not necessarily the same. It is conceded that a system of environmental review must be flexible and adaptible to varying circumstances. Not all decisions require the same degree of scrutiny and comment. Sifting mechanisms are necessary. However, assuming that the process of assessment is given a more secure statutory basis (as will be argued hereafter) there should be a right to object if statutory procedures are not followed. This can be distinguished from a right to seek review of any significant decision on the merits. Any system of environmental assessment should be open to scrutiny by a reviewing body in an appropriate case. In this respect we would commend procedures of the kind adopted in the recent N.S.W. legislation[1] as appropriate. It goes without saying, that any right to object or seek review assumes that standing would not be an issue[2]. In our submission any person with a sufficient concern, including purely environmental concerns, should have a right to be heard. This is not to say that busybodies and mischievous persons, or trade rivals, should not be subject to penalty for improper intervention.

With this by way of background, I would turn to the present legislation with a view to outlining concerns by the Conservation Council about its operation. From there, having outlined the deficiencies, I shall make some observations on matters which we would see as important in any revised scheme of environmental assessment.

In commenting on the present Act,[3] I am proceeding on a basis which draws a distinction between an ERMP and an EIS (the latter whether under the Federal Act[4] or more generally, any EIS). Of course the present legislation Act does not give explicit recognition to either, though some of its visions, ss.54 and 55, can be read in a way that envisages something like an ERMP. Of course the ERMP has developed as an administrative instrument and has been formalised in various Acts ratifying development agreements.[5] For the most part with respect to general environmental matters there is no legal requirement for any assessment instrument in this State.

It should be pointed out that one of the virtues of the ERMP procedure, that it envisages on-going monitoring, can, if seen another way, be criticised. This is because it fails to distinguish adequately between the decision to approve a project going ahead and a decision that it may go ahead subject to conditions. There is a tendency, arguably, to assume a project is to proceed and to look for conditions on which it may do so, rather than face the hard decision of whether it should be approved at all. This encourages an attitude on the part of government to approve a proposal so long as there is no clear evidence that it will give rise to

environmental damage. This is a wait and see attitude. On the other hand one of the virtues of the EIS procedure is that it puts a heavy onus on the decision maker to be satisfied that there is little likelihood of significant damage before approval.

Turning to the legislation, I would submit that the existing definition of"environment"[6] is too confined, and should stretch further to take into account social and other factors, as is the case with both the Federal[7] and New South Wales[8] legislation.

The major criticism of the Western Australian Act, however, is the fact that there is no stipulation of any procedure at all. Likewise there is no means by which the procedure can be enforced.

The major concern of the Conservation Council with respect to matters to date is that, in the absence of requirements for compliance, there has been great variation in the practice relating to environmental assessment by the Department of Conservation and Environment and the EPA. Because of the existence of a large number of Acts ratifying agreements concerning large scale projects, most environmental attention has focused in that area. Thus in the four years in which assessment procedures have operated in the State from 1978 to 1982 there have been 20 public environmental studies, 18 of which were Environmental Review and Management Programs, and two were for the purposes of Environmental Impact Statements of the Commonwealth Act.[9] What is perhaps more significant, is that many projects perhaps smaller in scale, have passed by largely without reference to the public, or where for the public has sought involvement, no occasion has been provided for adequate input by bodies such as the Conservation Council. In order to substantiate that claim I would refer briefly to some instances where disquiet was aroused.

A recent example was the Kwinana-Koolyanobbing rail line. This was a project already in place and it is unclear whether the refurbishing of an existing facility can be seen to come within the existing definition of "environment". Of course large quantities of hardwood had to be used for the project but essentially it appeared to fall outside the scope of the Act. Conservationists were concerned, but in the absence of any scope for intervention the concern was ineffective.

Some other instances[10] that could be mentioned of the inadequate and unsystematic operation of the present assessment procedures were:

- The Wilson By-pass Road
- the Hamersley Range National Park
- The Kalbarri National Park Road Proposal
- Mandurah By-pass Road and Bridge, and
- The West Cape Howe Reserve

Strictly speaking some of these would appear to fall within the guidelines of Bulletin 38. Nevertheless decisions were made without any significant opportunity for public input. Even where approaches were made by conservationists, the natural momentum of those projects pre-empted a proper consideration of their views.

There may be contrary opinions as to whether public input was necessary or desirable on these occasions. But the point that I would underline here is the fragile legal nature of the existing environmental

procedures. Assessment is largely a matter of discretion and there does not appear to be any clear or rational basis by which one project can be distinguished from another.

On the other hand, it might not be too optimistic to assume that there would be consensus that the ad hoc administrative procedures that presently prevail should be put on a statutory foundation. With that in mind I turn to make some positive observations about the features[11] we would see as desirable in any new legislation.

The first is that a technical distinction should be made between those aspects of environmental assessment which are directed to the initial decision as to whether a project should go ahead, and the elements of a decision which will apply to a program once in operation. The present confused merger of the EIS aspect and the ERMP aspect is, as argued above, undesirable.

Secondly, a code of procedures should be set forth in the Act requiring notification in the first instance of Notices Of Intent, satisfying the right to know mentioned above. Further, there should be provision for the public to have adequate access to information about the project.

Assuming some sifting device is included in the Act as to whether the project is one proper for an EIS/ERMP or not, there should be provision for reasons to be published, if requested, in the event that it is decided not to proceed with an environmental assessment.

Further, if an EIS is required, its terms should be carefully drawn up and publicised and a brief opportunity allowed to the public to comment on the adequacy of the terms of reference, after which, the EIS might proceed.

It goes without saying that the legislation would provide for adequate advertisement of the Notice Of Intent and the draft EIS. In this respect there are certain matters which though perhaps apparently trivial, should be borne in mind. These are that the purchase price of the draft EIS should be minimal and appendices should be available with the main document. This is part of satisfying the right to be informed. Secondly, the draft EIS should be widely and readily available for purchase or loan.

Next, the standard requirements as to the format of a draft EIS should be prescribed by regulation or administrative directive so that it is relatively easy to follow for members of the public. Perhaps as a matter of administrative practice rather than law the EPA should come down heavily on draft statements that contain padding in the form of irrelevant material. There is concern that ERMPs are used at present more as an exercise in public relations in some instances than as scientifically verifiable instruments. In such cases the requirements of an EIS is in fact counterproductive. The production of an EIS tends to sanctify ahd ritualise the government's approval and mislead the public into thinking that all is right with the world.

Once information is available a minimum period should elapse (subject to overriding considerations) before any legislation ratifying an agreement is introduced into parliament.

Where submissions have been made in respect of any project, the legislation should require that appraisals be made of those submissions as to their force and effect. Where any submission is made the person making it should be formally notified of any recommendations.

This then brings me to two further matters. One is, as foreshadowed above, the importance of access to information. Whether in the environmental legislation itself, or in a separate Freedom of Information Act, provision should be made for obtaining relevant information.

Another matter requiring comment is the prospect of review. Review would, in our view, take two forms. The first is that where statutory procedures have not been observed, there should be a right for any member of the public to approach an environmental court or tribunal[12] with a view to obtaining a stop order until compliance is effected. This satisfies the right to object, ensuring that administrators are made to observe the mandates set forth in the legislation.

More importantly, before any discretionary decision is confirmed, such as dispensing with the need for an environmental assessment, or, after environmental assessment, approval by a Minister, there should be the opportunity for review on the merits before an environmental court or tribunal. This is not necessarily to put in the hands of a court the power to override the decision maker. What we propose is a procedure such as that adopted in the case of the Commonwealth's Administrative Appeal Tribunal in dealing with appeals against deportation orders. There the AAT may recommend to the Minister that a decision to deport be reversed. That does not mean the decision <u>will</u> be reversed. It merely is a recommendation which can be ignored, though understandably the decision-maker would do so reluctantly.

OTHER MATTERS

To finish, I would draw attention to two collateral, though related, matters. Assuming that new environmental laws are to be introduced we would recommend consideration be given to repealing the Government Agreements Act. This has an inhibiting and chilling effect on public comment. Persons concerned about proposals are uncertain of their rights in terms of expressing that opinion.

Secondly, reform of environmental procedures should be comprehensive and include local government planning decisions, metropolitan development decisions, and large scale projects, such as under ratified agreement Acts.

Two final points. One is that there has been no reference made of the interconnection with Commonwealth procedures. As I have written elsewhere,[13] there is much to be said in terms of efficiency for a co-ordinated approach. But if State procedures are to serve as satisfying Federal legislative requirements (as in many instances at present) there should be mandatory procedures for transmission of objections and comments by the public to the Commonwealth so that Commonwealth authorities will act with a full knowledge of the concerns of critics.

Finally, the above remarks are directed largely to making effective public participation in environmental assessment. Matters outside assessment have only been mentioned incidentally and it is hoped that in regard to revising those sections of the legislation dealing with such matters the public will be given an opportunity to comment.

REFERENCES

1. The Environmental Planning and Assessment Act 1979 (NSW). Discussed by D. Fisher "Environmental Planning in NSW" (1982) 56 ALJ 399.

2. Thus avoiding the problems encountered by the plaintiff in Australian Conservation Foundation v. Commonwealth (1979) 54 ALJR 176.

3. The Environmental Protection Act 1971 (W.A.) as amended.

4. The Environment Protection (Impact of Proposals) Act 1974 (Commonwealth).

5. For example, clause 6, Alumina Refinery (Wagerup) Agreement, 18 Aug 1978.

6. s.4: The stress is on physical and biological factors; social factors are limited to "aesthetics".

7. s.3 of the Federal Act inludes "all aspects of the surroundings of man".

8. s.4 (NSW).

9. Submission prepared by the Conservation Council of W.A. (Inc.) to the Department of Conservation and Environment on Environmental Impact Assessment and Procedures, August 1983.

10. For more details of these, refer to submission prepared by the CCWA.

11. These are enumerated in submissions prepared by the CCWA.

12. The purpose of referring to a tribunal is to stress that review does not have to be excessively judicial. Presumably any proposals for reform of environmental law in this State will be consistent with the outcome of the recommendations of the Law Reform Commission of Western Australia flowing from its project on administrative law generally. The view of this writer is that though review is desirable, there may be a danger in over-judicialising review procedures.

13. P. Johnston and R. French "Environmental Law in a Commonwealth-State Context" (1982) Aust. Mining and Petroleum Law J., 77.

DISCUSSION

Q. MR. JOHN WILSON (Private Consultant, working in social impact assessment)

I'm interested in the public participation aspects you have been talking about and I'd just like to suggest that there is another area as well which fits into the social impact area. That is the social scientist, or whoever is doing the job in that area, could have the role of actively facilitating the expression of attitudes and values of the various publics who are likely to be impacted by whatever sort of developments are likely to come about. Now, that would seem to be compatible with the sort of processes that you have been makin explicit here. I am just wondering how you would envisage that sort of thing in relation to the points that you have been making.

A. MR. JOHNSON

I'm not sure that this picks up directly what you're concerned about but I'd say this by way of a preface (and that's because lawyers can never say anything briefly, whether they're being paid or not) that opportunities for review should not be taken as the opening of a floodgate. I think practice of environmental legal systems, for example in New South Wales, which has now operated for about two years, suggests that there is not really going to be an avalanche of public participation and therefore I think this avenues of comment do need to be encouraged. I think this is coming to where you are at: the opportunity for comment of the social impact is highly desirable. I can see that as part of the wider definition, for example, of environment. As to the mechanisms by which you can ensure that there is adequate opportunity for comment of this social kind, I don't know that you can really do more than offer the opportunity, although in many instances it would be ignored and not available.

Q. MR. JOHN QUILTY (ALCOA)

Mr. Johnson, I think industry would fully endorse your view on the idea of a high level of public participation and I would suggest that perhaps this can be achieved in a better way than than it's achieved at the moment. For instance, there may be more scope for public involvement during the preparation of an environmental review, as opposed to the subsequent examination of an environmental impact statement when it's been completed. On the other hand, there is considerable fear in industry and this was very well brought out at the recent national conservation strategy conference on the thought of recourse to the courts and greater litigation. If we look at the United States, this sort of approach does lead to an adverse approach to environmental concerns. It does lead to enormous costs; actual economic costs, costs to the Government, costs in terms of employment, the very real costs so far as industry is concerned in terms of its competitiveness and we must bear in mind the mining industry in particular over here is operating in an international market far more than a national market, so it is competing with industries often operating out of the Third World countries that are not subject to anywhere near the environmental controls and costs that we are subject to. These costs and controls we agree with but are wary about yet further impositions. In very simple terms, the sort of system you are proposing threatens to remove what developers very badly need in any legislative provisions. There are four requirements:

1. Finality. The fact that individuals can appeal at any stage removes the possibility of finality;

2. Flexibility and legislative provisions - legalistic recourses are far less flexible than executive discretion;

3. A workable time framework. It has been demonstrated in the United States where development approval now takes up to ten years and in New South Wales where they are taking four to five years that the time framework goes way out; and finally

4. Confidentiality. While you acknowledge the problem of confidentiality I would suggest to you that if there is a risk of material that companies bring forward to governments in the present process subsequently being subpoenaed to come before the courts, that industry may, in the future, be less than candid in putting forward information to the decision making authority to assist it in reaching its decision.

A. MR. JOHNSON

I'd just make three very brief comments about those points. I'm not advocating an American system, I think it was well observed elsewhere that in America every political question ends up as a legal one and with all that that ensures. What I am suggesting and I haven't got time to elaborate, is that some of the kinds of new adminstrative law procedures that are evolving on the Federal level which are more flexible, which are faster and yet would retain public confidence, should be looked at as models for a new kind of tribunal approach. I'm not suggesting judges, I'm trying to keep it away from that. I still claim and I think the Conservation Council would claim, that there should be some systems of review and one of the reasons is to ensure purity of the administrative process that if there is non-compliance with something then as a very minimal example it sould be able to be scrutinized by the court and a simple order made that nothing can proceed until that is satisfied. Two final points: one is, there must be time constraints in any process of evaluation but I don't think the time constraints have to be so severely oriented that they preclude review entirely. There might have to be time limits on review, but I don't think, as I say, that it should go to zero. The final problem relating to confidentiality could be solved by mechanical means. There doesn't have to be disclosure to the other side. It can be kept in camera with just a decision made in appropriate instances as to whether the information should be kept confidential (or not disclosed) so I see that some of the sting is taken out by what would be essentially mechanical processes.

Public Participation in Assessment

Dr. Geoff Syme
CSIRO

INTRODUCTION

In this paper I will address four issues. Firstly, public involvement (PI) is often unpopular among most sectors of the community in Western Australia; public servants, developers, miners, conservationists and the community generally. Secondly, there is currently no obligation for the Environmental Protection Authority (EPA) to incorporate the public in Environmental Impact Assessment (EIA). Because of this fact the conduct of public involvement has been erratic and often unsuccessful. Thirdly, there is a growing evaluation literature which indicates that public involvement can add to the quality of decision making. Finally, I make some suggestion as to how to implement public involvement in the EIA process in Western Australia.

WHY IS PUBLIC INVOLVEMENT DISLIKED?

There have been a number of statements as to the limitations of PI in the international planning literature. The complaints made about PI worldwide are those which occur in Western Australia.

To the industrialist it often means he or she has to interact with what seems to either be a non-representative vocal minority or a substantial body of uninformed opinion (or both). In any event the decision to mount a project seems inevitably delayed.

For the public servant the process can often be regarded as a public relations exercise to convince the largely ignorant public of the merits of a professionally sound plan. PI is an exercise in keeping the public "on side" which if it gets too noisy becomes an unwarranted challenge to professional expertise.

To the voluntary conservationist or "greenie" PI can appear a cynical exercise in which too little time is given to respond (in relation to the overall planning period) and which does not include sufficient representation by conservationists. PI may be seen as a manipulative device to use up the limited time and resources of the voluntary sector on submissions which will be shelved.

Finally the "general public", although often appreciative of the opportunity to respond, are often apathetic or even antagonistic or defensive. Antagonism arises where the salient attitude is that public servants are paid to do the "work" and their PI process is just another example of public service laziness, inefficiency or love of bureaucracy. Defensiveness arises when difficult or regional environmental problems emerge and there is a feeling of incompetence in the individual often not present in more local issues. In this case the individual may well ask where the "experts" are and resent being consulted.

Given this diversity of opinion about public involvement it seems that there is little wonder that the outcome of PI is erratic. This situation would be improved if a common perception of the process could be shared by all parties. Unfortunately, because there is no set procedure for public involvement in this State this is unlikely to happen.

PUBLIC INVOLVEMENT IN PRACTICE

In W.A. there is no obligation for the EPA to incorporate the public in decision making. The Environmental Protection Act 1971-1980 does, however, provide for a Conservation and Environment Council to provide community representation. The interests represented on this council are shown in Table 1.

Table 1

Interests represented on the Conservation and Environmental Council

8	State Government Public Servants
1	Municipal Council Representatives
2	Individuals Representing Conservation Interests
1	Representative of Primary Industry
1	Representative of Secondary Industry
1	Representative of Mining Interests
1	Representative of Tertiary Education
1	Appointment at the Governor's Discretion

It can be seen that representation of community interests is sparse. Half the members represent State Government bureaucracy. A quarter are representatives of industry, and only two individuals representing conservation minded individuals are members. Many community groups with legitimate interests are members. Many other community groups with legitimate interests are not included. The Council cannot, therefore, be seen as a permanent vehicle for public involvement. For example, the Conservation Council, the umbrella organisation for many, (but not all), voluntary conservation groups has complained about its lack of representation. It is conceivable that many other groups including those from industry may feel similarly.

Regardless of the merits or otherwise of the representation on the present Council it will always be inadequate as a sole vehicle for public involvement. In order for it to function its size must be limited. But even in wide ranging studies such as the System 6 Conversation through Reserves investigation where substantial outside input was sought by the Department of Conservation and Environment (DCE) during the information collation phase the representation of general community interest was low. Table 2 shows the representation of members of the formalised System 6 study committees. Here again there was a preponderance of state public servants (58%).

Table 2

Representation on Formal System 6 Study Committees

State Public Servants - Development	18
State Public Servants - Planning	6
State Public Servants - Conservation	8
Academics	7
Industry and Commerce	6
CSIRO	4
Local Government	3
Private Town Planners	2
Conservation Groups	1
Total	55

These are relatively few representatives either of industry or commerce and only one for voluntary groups. This pattern of representation probably reflects the fact that because the System 6 study was operating in an area of high land use demand the setting aside of reserves became a quasi-land use planning exercise. The need may have been felt for a substantial degree of technical advice. The System 6 study did vigorously attempt to seek public submissions at two stages of the study - one of which is briefly discussed below. The representations on the Conservation and Environment Council and the System 6 committees do show however that it is not the tradition in Western Australia for the EPA or DCE to invite substantial participation from community groups in ongoing formalised committees.

Participation by the voluntary sector is usually conducted on a case by case basis with the format varying from project to project in the absence of any specific guidelines from the Act. However the Perth-Dampier pipeline provides a good example of a fairly standard approach to public involvement. After the ERMP was distributed a submission period of 8 weeks was provided for. About a dozen submissions were received, none of which expressed total opposition to the project. Many of the suggestions for change or general comments could be easily accommodated in the final plan. Presumably this exercise in PI could be regarded as a "success".

In contrast public involvement on the second phase of the System 6 study, was highly planned over 21 months and it involved; negotiation of an agreed procedure by diverse groups (see Table 3) with DCE, departmental logistic support for participants, and a variety of techniques to obtain submissions.

Table 3

Specific interest groups involved in the second stage of the System 6 public participation programme

a. Earlier Submission Writers: those people who made submissions in 1977;

b. Community Leader Groups: formed from people who play an active part in community affairs, as seen by other people in the community;

c. Land User Groups: who may have had specific concerns on which they wished to comment. (This group included farmers, fishermen, beekeepers and others with a business interest in a particular land or water resource, industry or development project);

d. Voluntary Conservation Groups

e. Recreation Groups: these may have been recreation groups already in existence or formed specifically for the purpose of studying the System 6 Report;

f. Broad Interest Groups: consisting of community or other groups that would have like to have been involved (e.g. Scouts, Community Service Groups, Trade Unions, Business Associations and Profession Bodies);

g. Concerned Citizens Groups: consisting of individuals who were interested in participating, but who either could be classified in a number of, or none of the above categories.

This PI programme aroused much controversy and ended in a political veto. Presumably this example could be regarded as a "failure" in that despite the extensive planning not one formal submission was obtained.

Those cynical about the value of PI may view these two examples as being indicative of its value. That is PI is acceptable when the planning problem is simple and the solution reasonably self evident or in other words when PI is not really needed. It is ineffective though when the problem is complex, there are differing community viewpoints and there seems to be no universally accepted answer. That is, it is ineffective when it is really needed. Are the cynics right or is there a case for PI providing a positive input into the environmental planning process?

EVALUATING THE PI LITERATURE

There are a growing number of professionals who are suggesting that the cynics are wrong and that PI does contribute positively to planning. Deficiencies observed are seen as the result of inadequate implementation rather than deficiencies in the PI concept itself. This judgement is made from a growing evaluation literature emanating from many disciplines and planning contexts. Much of the literature arises from the activities of evironmental agencies and public utilities in the U.S.A.

The majority of this documentation consists of anecdotal accounts of case studies which, with few exceptions, have had no preconceived model as to what decision making processes and outcomes could be affected by PI nor even what a reasonable criterion of "success" would be.

Most of the literature is favourable as to the value of PI, but there are some exceptions. The preponderance of positive evaluations is not, perhaps, surprising. We all like to report our successes rather than failures. Because of this, on the basis of the planning literature we cannot come to conclusions about the absolute success rate for public involvement.

What we can identify, however, are those elements common to the successful case studies. These have been summarised by several different authors and can be listed as follows.

(a) Agreement

The process of PI should be agreed between the agency and the participants. This will ensure that a reasonably common view of what is going to happen will be retained by all parties, thus preventing unnecessary conflicts during the PI programme itself.

(b) Timing

Public participation should start early in the planning process. The greater the number of decisions made before the public is consulted the less likely the developer or public servant is to want to change. It is also less likely that the public will be aware of all the problems involved with any earlier alternative plans. In either case informed exchange of views becomes more difficult. Thus the later the public are involved the more likely that conflict is to occur. Strong consideration should be given to consulting the public during preparation of ERMP's.

(c) Objectives

The objectives for a PI programme need to be clearly stated. While this seems self evident for most aspects of the planning process, objectives are rarely stated in PI programmes. The objectives should be included in the agreement reached prior to the commencement of the programme.

The advantages of devoting the considerable thought often needed to define objectives are twofold. Firstly, realistic criteria for success can be set. Secondly the ways in which public input is obtained can be selected to ensure that the objectives are met.

In the first case, if goals are set progress towards them can be demonstrated. In this way the vague feeling of dissatisfaction and lack of achievement often felt by many participants after a PI programme is complete can be avoided. Useful evaluation studies can also be conducted.

Clear objectives also lead to clear ideas about how to achieve them. In too many cases methods for involving the public lack imagination. Public meetings, search conferences, discussion groups and so on are often chosen because its the current "in" thing to do. Techniques chosen on this basis often fail, not because they are wrong but simply because they are being asked to collect data for which they were not devised. The value of alternative techniques for different programmes should be assessed in terms of their ability to gain the specific types of information for the particular objectives set. For PI to be successful it needs to be both planned and flexible.

(d) Power

People need to be aware of how much power they are being offered. Many people in Western Australia have become cynical and disillusioned because they have felt as though they have had little or no influence on decisions when they expected that they would have more by participating. While the degree of influence that participating individuals may have on any particular project may vary there must always be limitations given our political process. The enthusiastic planner in promoting his or her PI may not wish to highlight these limitations but he should make the level of influence which can be expected explicit from the beginning to avoid exploitation. This may appear to be to the short-term disadvantage of the department in terms of the numbers of submissions collected for a

specific project. But in the long run it will enhance the department's reputation, through the public appreciation of the professional ethics of the officer(s) involved. This will probably result in increased levels of subsequent participation.

(e) Interested Parties

All interested parties should be included in any PI programme. While this may seem common sense to many, inclusion or exclusion of various groups from the PI process has been a matter of controversy in the past both in W.A. and elsewhere. Problems have arisen when the phrase "interested parties" has been taken to mean "legitimately interested" parties. This has often resulted in the exclusion of some who wish to participate. Perhaps, the classic situation is the planner becoming irritated by people who insist on being involved in a carefully planned, labour intensive PI programme when the planner thinks it's none of their business. A typical example could be the exclusion from some or all of PI of the views of those who are interested in conserving an area but never visit it. The consensus of the PI literature is that such people should be encouraged to participate. Interest in the problem, rather than compliance with some social or residential criterion, should be the basis for inclusion.

(f) Information

Information gathered in the PI exercise should be freely available to all participants, except if specifically stated by the contributor. This will help prevent suspicion between differing groups and provide either the basis for consensus or a more rapid definition of the differences between various groups. Either outcome will facilitate any possible conflict resolution due to the PI process.

(g) Analysis of Input

Participants should know how their submissions are to be processed. Often both the planner and the public at the beginning of a PI programme are so preoccupied with gathering data that consideration of how it is to be processed or analysed is deferred. Three reasons exist for the failure to discuss the processing of information gained; (a) it is an aspect that doesn't occur to many participants as yet in W.A., (b) formal analyses can be very technically complex, or in some cases, of dubious cost effectiveness, and (c) public servants are not sure what mode of analysis to adopt until they have seen the quality and content of the submissions. None of these reasons are sufficient for avoiding the issue. Some would find it unethical for public servants to flick through submissions to find interesting or supportive ideas, or simply to do a head count. While the problems in this area are easy to document the solutions are harder to find.

Suggested improvements could be for comprehensive content analyses to be done by independent consultants, or for the assimilation of the material to be done in conjunction with representatives of interest groups to avoid selective biasing. There is an urgent need for some applied research in this area in Western Australia and elsewhere to ensure that developers, public servants and participants get "value for money" from the public involvement process.

(h) Practical Assistance

Voluntary participation at any level in an EIS results in some sacrifice. For some it may merely represent a very small expenditure of time. For others who wish to respond in a reasonably detailed, informed or ongoing way, the personal costs involved may be quite substantial. To encourage high quality submissions, therefore, assistance should be made available. This may vary from reimbursement of travel costs to committee meetings to providing interest groups with funds to hire an independent professional to help them develop their own case.

While not customarily available in W.A. the latter facility has proved very successful in the USA where a number of positive changes to plans have occurred as a result. Such a system implemented in W.A. would ensure high quality submissions in a reasonable time-frame for the developer and for this reason could be a cost-effective innovation.

In summary the PI evaluation literature has provided some general guidelines as to practices which should enhance the performance of PI programmes. All of these characteristics can be incorporated within our EIA process if there is a will to do so. In the final section I make some recommendations as to how our decision making system could be changed to incorporate these characteristics.

INCORPORATING PUBLIC INVOLVEMENT IN ENVIRONMENTAL IMPACT ASSESSMENT: SOME RECOMMENDATIONS

(a) There is a need for PI to have a routine place in the EIA process. Each EIA should have a budget sufficient to meet the agreed objectives of the PI. There should be staff within DCE trained specifically in dealing with social aspects of EIA and PI in particular. Alternatively existing staff should be encouraged to enhance their skills in this area. In any event the allocation of staff to PI needs to be planned.

(b) Independence - In situations in which there is likely to be a conflict of interest between the public servant and the public or where DCE itself is conducting an investigation, PI should be planned by a consultant independent of DCE but interacting with it. In this case DCE should be considered as an "interested party".

This would ensure that the PI would be considered a credible exercise in information gathering and negotiation by the voluntary sector.

(c) Incorporation within the Act

Provision for PI should be incorporated in the Act in a flexible enough way that it can meet the guidelines for PI practice outlined above. This would provide a guarantee for the public that PI programmes would be conducted and that they would have provision to object if it was not satisfactorily carried out.

Such a provision is not new in Australia and a suitable example is provided in the Commonwealth Great Barrier Marine Park Act (1975). The specific provision for PI in this Act has resulted in an enthusiastic professional approach to PI by the Authority and the recruitment of specialised staff. As yet there have been no complaints about the PI conducted by the Authority, perhaps because the provision in the Act has reduced the feeling among the public that it is merely a public relations or manipulative exercise.

(d) Legal Standing

Provision should be made for legal standing for community interest groups. In making such a recommendation it must be qualified. Firstly, the courts are unlikely to be the most effective way of ensuring community input. They lack the flexibility for compromise, they can be expensive and time consuming. In the end environmental arguments should be solved with environmental knowledge not by argument over increasingly fine legal points.

In opposing legal standing many point to what is considered excessive litigation in the USA and New South Wales. While this may be of some concern, there seems no reason that a simpler and more informal Environmental Court could not be devised which could quickly veto vexatious litigation. We should learn from the situation in other places and devise a system which does not unduly delay appropriate development. The provision for an Environmental Court could be made for a trial period, then evaluated and modified to meet the needs of the developers and the public in W.A.

The creation of legal standing would have the very important positive effect of legitimising the public's role in environmental decision making. It should provide a situation in which it is to everyone's advantage to participate fully in a PI process which is seen to have importance. In this case we are likely to see planned PI programmes which have specific objectives. Such programmes will contribute positively to EIA.

DISCUSSION

(Discussion was held over until the Forum. See next section).

Summary of Forum Discussion

(The session was chaired by Hon. Ron Davies. All speakers were present, but Dr. David Dale substituted for Mr. Peter Johnson as the representative of the Conservation Council of W.A.)

Q. JOHN QUILTY (Alcoa)

Dr. Syme, you said that a system should work where there's recourse for individuals to the courts and that in general there should not be a lot of complaints. In New South Wales where it's been operating for only a short time, there hasn't been a lot of recourse to be fair, but there has been vexatious recourse. One classic case was an individual who brought a case that mining in Lithgow was going to lead to a shift in the continental landmass. That case did have to go to court to at least hear whether it was vexatious or not. I'd point to the US system and say that where such a system has applied for many years, it has been demonstrated that it does lead to delays, it does lead to successive actions and it does lead to a considerable amount of vexatious action to the degree where the developers become very discouraged. Now I would ask you, how do you propose that that be guarded against effectively?

A. DR. SYME

First of all, I agree that there are legitimate concerns. I don't know what's happpened in New South Wales but I'm quite ready to believe you in terms of the USA, about things being held up. To me, not being a lawyer and being fairly simpleminded about it, if we created something we called an environmental tribunal or whatever, which summoned that person to present a preliminary case to them that was obviously nonsensical I think they could cut it out within a week. There is no need for incredible formalisation. I think there would need to be a preprocess to find out whether the case was at least well researched, well argued and whatever, and the situation of one person bringing what's obviously an ill-informed and quite vexatious claim, would be gone within a week. There is no reason why that can't occur. We do have, I believe, in this State people who aren't involved in industry or the conservation groups, people who would be quite capable of making that decision quite early. I'll admit that my answer is very simpleminded and what I would not like to see is standing just put in the Act without really careful thought about the timing of these things as to whether my suggestion is practical. I don't think because the USA's made mistakes and maybe NSW made mistakes, we should be particularly scared of providing standing. Surely we can learn from them and know what doesn't work. The reason I am so keen on it is very simple. At the moment I think all of us regard people who bring money and jobs into the community, developers or whatever, as basically honourable people, as Barry Carbon has said, unless things are done that are socially unacceptable. So it's quite easy for us to accept, and very persuasive for us to accept, that the views you have on development are legitimate and fair and with a thought to the welfare of the community as a whole. There has to be somewhere, sometime, a commitment by the Government that they regard people who want to become involved, with decision making as having the same intentions. If we worried so much about the one or the half percent of people who do do vexatious things, we are cutting off an important right and

privilege to the 99.5 percent of people who sincerely hold views that they wish to promote on behalf of others in the community. So I don't think that you can, because of the possible pitfalls, destroy the whole concept. I think we can get around the problems in the US.

A. DR. HOLLICK

I'd like to clarify a couple of issues in relation to the US situation which I think are not often understood clearly. The first is in relation to the number of cases that they've had. Initially, with the passage of WEPA, they did get a flood of litigation, but over the years if you look at the ratio of EIS's prepared to court cases about them, the number is not enormous. The other fact is that the courts in America have refused to get involved in the substantive issues, they do not decide whether a development should go ahead or anything of that sort. What they are involved in is procedural issues. In other words, if the agency has a responsibility to prepare an EIS, it will investigate whether or not it should have done so if it hasn't. It will investigate whether the EIS is adequate according to the legislated provisions and so on. One of the things that's happened there is that agencies have learnt over the years to comply with the procedures. Consequently the number of cases has dropped and, in fact, when I toured America in 1980 I talked to a few of the Conservation Groups, people like the Sierra Club's Legal Defence Foundation, and they were expressing the opinion that EIS litigation was essentially a worn out tool from their point of view because all the agencies had learnt to fulfil the requirements adequately and there were very seldom legal loopholes. Having said that, I still have concerns about opening this avenue up as there are associated problems which are not often raised. One is that once you've got this sort of legalistic approach you have to have rules and regulations governing the relationships between all the different participants, governing what rights and responsibilities people have and so on. The relationships between government departments all come to be governed by rules and regulations. They're inflexible and they can't respond very well to new situations and so an enormous amount of manpower is wasted not in the courts, but in modifying the rules and regulations to fill foreseen loopholes. The people to whom they apply then have to keep up to date in knowing what, in fact, their responsibilities are. It has become an enormous task, and the volume of regulations is absolutely staggering. That could be a by-product of having access to the courts which I wouldn't like to see. I recognize that there are desirable reasons for having court access, but there are some serious problems that do need to be thought about very carefully.

Q. LAURIE HUMPHRY (Speaker)

I'd like to address a question to Malcolm Hollick. In respect to including social issues into the environmental assessment, I'd like to know at what level the final decision should be taken on social issues - should it be a State level or should it be a local authority level?

A. DR. HOLLICK

I'm not sure that I want to answer that one. Obviously with many of the very large developments in the State, particularly those which become subject to Agreement Acts, the decisions on all factors are essentially made at the State level. There is no getting away from that. By the same token though, I think the decisions they come to with regard to local effects on, say the community at Boddington, of the Worsley project, should be taken in very full and complete consultation with the community, to try to ensure that any adverse effects that occur are reduced to an absolute minimum. I think that a very large measure of consultation does occur over those projects. With smaller ones, such as the ones that Laurie's obviously more interested in, which aren't subject to Agreement Acts it's very difficult. I would hate to see the power to control their own environment taken away from local people, and the point has already been made that maybe the reason the Council in Mandurah changed was because the large number of ratepayers felt strongly about canal developments. I don't want to enter into the rights and wrongs of that one, but as far as possible I would hate to see the power to manage your own environment taken away from the grassroots.

Q. DR. BRIAN O'BRIEN (Consultant)

I must admit, as Chairman of the EPA for 7 years, I hadn't noticed that the public felt constrained in participating at all. I used to read about it every afternoon in the Daily News. Seriously, there are two points; first of all the EPA did involve the public on numerous occasions, for example, before they toured the Shannon Basin they met with three pairs of representatives from conservation groups to see where they should go. When they came back, they almost reported back to that group. That's a very informal arrangement and that sort of arrangement can be made without writing in legislation, but that's something we can talk about at length. Secondly, I did want to correct one error that Dr. Syme made. He said that of the number of people in the Conservation and Environment Council, that there were no representatives of conservationists. Section 17 1(c) of the Act does specify that there are 2 such representatives. Whether 2 is enough is a separate issue but it's not zero it is 2.

A. DR. SYME

If I could reply to that. First of all I didn't say that the EPA didn't consult the public. I don't think that was the impression I was trying to create. In fact, I did explain the incredible lengths which were gone to in the System 6 Study to try to get it. What I am saying is that it shouldn't be done as an afterthought without appropriate planning. In terms of the zero representation, one of the slides I showed did say that there were 2 people representing individuals and environmental groups. I think that's the wording - I'm not sure whether that's exactly right. I did say that the Conservation Council asked me to put up that slide because they were concerned about representation. The point they were trying to make was that, as far as they were concerned, the Conservation and Environment Council didn't include anybody from the formal

conservation groups. Now, it's a matter of interpretation and your comment is quite correct in terms of what's in the Act, although I did, on the other slide, show that there were 2 people representing environmental groups.

Q. MR. DENNIS BROOKS (Associated Minerals)

Talking about public participation, today itself is an act of public participation, and I would like to address a question to either Colin Porter or indeed yourself, Mr. Chairman, as Minister. Prior to that, let me preface my remarks by saying that I agree with Professor O'Connor that this Government review of environmental legislation could well be a watershed in Western Australia because the results of this review could have very dramatic long term effects on the future development of this State. I think the concept of this Public Seminar is commendable but we've had a very heavy session today and there is concern in the industry, and I believe probably in other groups as well, that a review of this nature should have been spread perhaps over 2 or 3 days instead of just one. We've had very limited discussion, in fact there's been less than an average of two questions per topic throughout the day, whereas really a subject like this needs a full interchange of opinion and debate of different points of view. So it leads me to three questions. Basically where does the Government intend to take the situation from here, what processes does it have in mind, and will the Government consider perhaps setting up a consultative process in dealing with the preparation of any legislative changes that it has in mind?

A. CHAIRMAN (Hon. RON DAVIES)

I can give you a comment or two about it. From my position here I have concluded that when we run out of time, we run out of questioners - there didn't seem to be anyone rising to ask questions. They might have been shy but I felt I lingered long enough to encourage them to get up if they felt it was very urgent. Secondly, I don't know how long you go into consultative processes. I announced that we were going to review the legislation back in February. I think it was not long after the Government took office. I can't recall having one representation since then except from people who wanted to be consulted when the Bill was in its draft form and I undertook to talk to both the environmentalist groups and the Confederation of Industry before we took the Bill to Parliament. I am amazed and delighted indeed, that so many people holding very important positions in the community in Western Australia, should be able to spend one whole day here today and I am gratified that they could take the time off. It may indicate that there is enough interest to hold a seminar over a weekend, but I found out with seminars over weekends, they usually start late and finish early and have long lunch breaks, so we thought we'd try to confine the debate to one day. Finally, anybody has up until the 5th August to make any written submission to the Government which is a further 3 weeks, and every one those submissions will be considered. So I think we are going as far as we could reasonably expect to go in inviting public participation. I really feel that somebody has got to make a decision sometime and having confined what we have done from February up until the 5 August, or having made that opportunity available, then that's a reasonable opportunity for the public at large.

Q. MR. BOB CAMERON

I'm sorry to hog the microphone but I can't have Alcoa ask more questions than MITS. I did run into trouble at the afternoon tea break. I was told it was a sexists organisation by some of the ladies and so we've changed the name : they were going to form TWITS "The Women of the Street" in the Street, not of the Street, sorry, but we've compromised. It's still MITS, Ms in the Street! Getting back to the serious side of things, I'm interested in public participation, and I was a little intrigued by Dr. Geoff Syme's paper on public participation. He was meant to speak for 20 minutes and leave 10 minutes for public participation. He spoke for 31 minutes. Public participation is a problem and especially in complex issues. I was instrumental in forming a committee to encourage public participation in the eastern corridor study and we had quite a flood of written response to it and, frankly, most were rubbish. Where do you start as an ordinary man in the street? I'm wondering if what we are trying to find out is what does the public think and want in a complex thing. There's no way they can contribute unless they are in an organisation with a diverse number of members with different expertise. Why not use a questionnaire approach? Now, if they don't want to fill it in they are not interested, same as voting for your local council. If you don't vote you're not interested so you live with who you get - like Mandurah. I would like Geoff to respond. The public who are interested should have access to the options, the opportunity and someone to analyse it. It's God again I know, (we've got troubles there) but give them a chance to contribute so the people who are forming the final recommendations can establish what they'd like to ask these people, to find out how they would react, and get a questionnaire out to make life a little easier.

A. DR. SYME

First of all you're right, yes, the so-called quality of input from the general public is very variable. What I didn't have time to talk about was the use of different methods. Questionnaires have a big advantage for some problems however they have limitations and maybe there is not much point in just getting an opinion. Do you want (a) or (b) without people really understanding what the options are in both cases? I think the general point you are trying to make is really this: what we should try to do is to use a particular method which suits the particular problem and in some cases, that would be questionnaires. The reason I was trying to encourage the Department to get officers who had a long-term interest in specialising in that sort of thing is that they will gain the knowledge as to what method is best for what purpose and vary the public involvement accordingly.

Q. MR. HARRY BUTLER (Consultant)

I repeat the question raised earlier, and I have had some discussion with Mr. Thomas about it. He now understands what I was really driving at. If we reverse the situation of resources, and I'm talking about development of conservation reserves as a form of alternate land use and development, and ask any National Park or Wildlife Authority who wishes to create such a thing to put forward all the alternatives, the very quality of wilderness will be toally destroyed while they rip up the country to find out what minerals are underneath it before they can give such alternatives.

A. Mr. THOMAS

I think you are in the situation here where society has to decide whether or not the particular wilderness area is sufficiently treasured for the society to deny iself knowledge of exploitable resources within it. One is not in a position to make a rational choice unless one decides that the wilderness must be spoilt to some degree to find out that information. I find it somewhat difficult to understand how you expect me to actually answer this extremely intractable problem.

A. MR. COLIN PORTER

I consider the creation of a wilderness area as a national park is not development. In fact what you're doing when you are reserving lands for conservation purposes is preserving your options and denying the opportunity to development that can affect the environment. For that reason I don't see the reverse applying. That seems to me illogical; it's taking the idea of environmental impact assessment far beyond its original intention, which is developments of such a major nature that they will adversely affect the environment. However I think the speaker who raised this earlier on made a perfectly valid point when he said that when we change one land use for another, for example where we convert bushland into agricultural land, that is a radical change in land use which perhaps could be subjected to the impact assessment procedures. The case of retaining land in existing natural form doesn't conform to my definition of a development.

A. MR. EUGENE O'CALLAGHAN

If I could just add a comment from the industrialist's viewpoint. It seems to me that there can be the 'do nothing' philosophy which is what happens if you declare an open area and decide to conserve it for recreation or whatever and therefore not to develop it. If there's going to be an extension of the definition of environment to include cultural, economic and other considerations, then indeed any change to any piece of property for the purpose of creating a reservation for any purpose is going to have cultural and economic and other factors attached to it and it must follow that the logic of one applies to the other.

Q. MR. HUGH JONES (BHP)

As we are rapidly drawing to a close I wonder if Mr Porter could tell us what he sees as the difficulties with the existing legislation so that those of us who are going away and going to put in written submissions have some idea about what the Department thinks so that we can address our submissions to the Department's problems.

A. MR. COLIN PORTER

Well, I think, all I said in my paper is that, in effect, we don't have any legislation specifically designed to facilitate environmental impact assessment. What I have said also is that the Commonwealth and all the other States with the exception of Tasmania

do, and they seem to have found advantages in having legislation, although all of them admit that the legislation did not make a major difference to the way in which they were handled. In other words, environmental impact assessments were being processed through similar systems before the introduction of legislation as they were afterwards. I think the advantage of having legislation over not having legislation is that people know where they are. I think the critical question is how much and to what extent do you want to formalise that legislation. We've had several papers today which have indicated the conservationists' viewpoint that "rights" should be spelt out. Now once you start spelling out rights; rights for appeal, rights to be heard, rights to object, which are laudable objectives for the community to have, you start reducing the flexibility of the system. Once you go to the New South Wales situation where you schedule all those types of development for which an environmental impact statement is automatically required, then you get into interpretations of that schedule and again you reduce the flexibility. So I think, on one hand you have the rights; the rights to be informed, the rights to object, etc.. On the other hand you lose a degree of flexibility, and you can work yourself into a situation where very long time periods are involved or maybe projects get caught up in the process which all reasonable people will agree shouldn't need to be. I think those are the sorts of key issues which you have to make up your own mind about in deciding whether to have legislation.

Q. DR. PETER NEWMAN (MURDOCH UNIVERSITY)

I'm interested in pollution control and legislation related to that. There appears to me fairly scattered legislation in this area particularly in the areas I'm interested in with regard to water pollution. We've got the Health Act, we've got the Rights in Water and Irrigation Act, we have local councils managing liquid wastes, we have the Water Authority looking after a number of industries that discharge wastes. I'm just wondering if there are any plans to incorporate pollution control in this new Act and whether or not the Department of Conservation and Environment would take on some management role in this area?

A. CHAIRMAN (Mr. RON DAVIES)

We'd like to get this all under one umbrella. There are some difficulties. There are bureaucrats fighting bureaucrats. Some don't want to give up what the others want to take control of. I can say that I am heartily sick of people ringing me up and telling me that the air stinks around their place and what am I going to do about it. The best I can do about it is to refer them to Barry Hodge (Minister for Health) and hope they get him out of bed and complain to him because he controls the Clean Air Act. The Health Department also controls the Noise Act. I don't know that a smell has ever killed anybody, I suppose there could be poisonous gases or something in it. I would like to see it under one umbrella and maybe out of this we will get some changes of jurisdiction, but I can't be certain at the present time until I gird my loins and go into fighting some of the bureaucrats, who have to advise me, don't forget. We are hoping that something might happen and I can appreciate your difficulties because I experience them also.

Q. MR. HARRY BUTLER (Consultant)

Today we heard Mr Wulff comment on the co-ordination and co-operation between the EPA and the SECWA regarding their environmental review and management programmes. We also heard a quite contradictory point of view expressed by the gentleman from Mandurah. In the very glowing report that Kevin gave he stressed one thing only and that was the time lapse; 8 months I think he said. I find it very hard to understand why if the EPA and the Government Departments were totally involved in the planning and production of the SEC's project, why there should be that time lapse and perhaps some comment from the table might be worthwhile?

A. MR. COLIN PORTER

I can answer your question very simply in one word - resources. Basically, that's what it boils down to. A lot of the things that have been suggested today I'd love to be able to do. The problem is that I have a limited number of people - I'm not using this opportunity to put pressure on the Minister because we all know the financial situation under which we exist and the financial situation which, for some of us anyway, is going to get worse rather than better. However, it really does boil down to a question of resources. One does have a very limited number of staff to tackle the problems. It would be very easy to halve the time if you could put two people onto the same assessment. There are some procedural problems and one of them is that with a public review period you find in practice that you get 50% of the ultimate submissions in by the end of the review period. Government Departments - some I won't mention - are particularly bad and don't give you their views until weeks, in one case more than two months, after the closing date. You can't actually complete your assessment and provide the advice and information to the EPA in some cases, until two months after the closing of the public period. The EPA itself sometimes asks further questions, they may need to consult with the agency, the proponent, and so the thing drags on, but obviously, it really comes down to resources. Quite clearly, one is limited with an EPA which is part time and which meets on average, fortnightly. All the members have other work to do. One is limited far more by the staff available to handle the issues. If we had twice the number of staff we could reduce the time, not by half, but by considerably more because an officer who's handling the assessment of a major project will, in all probability, be handling four or five other things at the same time. Putting it all in one word - resources.

A. MR. EUGENE O'CALLAGHAN

I guess we again have to acknowledge that this not a one-sided situation. Everybody participating in this seminar has got a resources problem in one form or the other. If there is not productivity and if there is not profit, there are no resources. If we put that into the operating scene we see a tendency of thinking emerging that maybe the Health Department should be duplicated by having the Environmental Department looking at some elements that the Health Department won't relinquish anyway. Then we'll have the dual role; we'll have the dual technicians, the dual call for resources, a dual programme of requirements to be met by the project developers. Again, we are gobbling up resources and it's this area that we've all

got to see in balance. I say with the greatest of respect to the Department and its problem, so the other side too, the doers, the people who are generating the profits from which taxes come to find the resources have got also to have their resources conserved by not having to jump the high jumps and by not having to run this ever more terrorising race of obstacle jumping in order to get a project off the ground.

Q. MR. LEN HOWARD (Peel Preservation Society)

It's a bit hard for people such as myself to come to a meeting like this with a huge array of scientific bods. I've heard quite a few things that have been over my head and a lot that hasn't, but I think that the real issue is environmental impact assessment and we haven't heard a terrific lot about that. I would just like to raise a couple of issues as a person belonging to a conservation group with no formal education.

1. Firstly, with regard to the alternatives that are not presented in ERMPS, or at least not in ERMPS concerning canal developments, Mr Thomas spoke of alternatives that should be in ERMPs. Now as I see it, in the ERMPs on canal projects, Mr Humphry's hundred houses are going to be built on wetland near the channel entrance with serious uncertainties and possible environmental bad effects when there are already in existence in Mandurah upwards of 15,000 vacant lots properly approved by the Council. So there is certainly no shortage of housing, but that alternative is not mentioned in the ERMP. I have just seen a publication that gives a lot on boats and the number of boats that are going to be there. Only a few miles further north there's another big project, Secret Harbour, that's got the go-ahead and is nearly ready to go. Now I think that both these things should have been included in the ERMP.
2. The reasons that Mandurah Shire Council knocked the project back were mostly social/economic factors and I'm not going to go into them. The other one was based mainly on the terrific uncertainties that were raised by the EPA. We've got no quarrel with the facts, but the way that they were assessed by the EPA I think raises a lot of room for doubt and I'm hoping that the Department will very seriously consider enlarging the content of the EPA.

A. MR. HUMPHRY

I think that from my point of view, the question makes a point that I was trying to put over and that is that the credibility of the EPA seems to be in question.

Q. MR. DAVID RICE (MAIN ROADS DEPARTMENT)

I have a question to the Minister and/or Mr Porter. So far today we have spoken about major projects and ERMPs. The organisation for which I work has annually about 500 to 600 smaller projects and we've been working out procedures by which to assess these day to day works. Do you see the future legislation either covering or specifically excluding such smaller but accumulative projects by State and local governments?

A. CHAIRMAN (Mr. RON DAVIES)

We see that they would still be subject to the same assessment but the overall basis would be to streamline the procedures.

A. MR. COLIN PORTER

We currently receive something like 350 referrals from the Town Planning Department with respect to various types of land development, each year. None of those go through the ERMP process but we do give advice to those local authorities or to the Town Planning Board on all of those types of applications. Similarly, we offer advice to other areas of government right across the board. The environmental impact process is a fairly heavy one, particularly when it involves the preparation of an ERMP and a public review period. These will always be reserved, obviously, for major projects, but that doesn't mean to say that environmental advice isn't available, particulary to government departments and local authorities who have to make decisions. We provide such advice on a regular basis through the Department without necessarily involving the EPA. Perhaps we don't publicize this enough but it is certainly available and there is scope for that. There is, in the triggering mechanism that I've shown, a point at which a decision is made as to whether the procedure needs to be invoked or not, and that really is the stage of whether you even go to a Notice of Intent. This is usually done after discussion with the Department. The decision as to whether to go to an ERMP is required by the EPA but the early decision is just part of the normal departmental process and I think the same would apply to all government and local government instrumentalities.

Rapporteur

Professor A.R. Main
Chairman, EPA

During today, I got the feeling that there hasn't been enough time for people to express themselves and state their views on the various things that are happening in environmental assessment.

What I intend to do is briefly go through the points that I've seen as significant in what people have said and then try and put the presentation of today into a context that I think takes it out of the present field but highlights the feeling that many people have about the problem of environmental impact statements and reviews. Many of these have been explained today or expounded today by the various speakers.

The first thing I'd like to note is that in terms of people that presented papers, there are a number who are engineers. They're the people who actually see things get done and if things can't be done, they know ways of arriving at solutions. This is highlighted by the nature of the presentation that these people gave. They have a training different from that which we might expect for environmental reviews. Nevertheless, these people have come to the party but they cannot divorce themselves from their professional training. I think this has been very well exemplified by Laurie Humphry's presentation. He gave a well argued, logical and coherent presentation of the frustration he felt when he had gone through all the hoops and everything that was required, and then missed out on a final end point where he would expect approval. Now that in a sense is a damnatory statement, but Laurie really came up with a possible solution. That is, he suggests that if this happens then there should be a review period or some way of appealing. Essentially, his professional training comes through and he shows himself as proposing what he sees as a solution.

Stuart Hohnen, on the other hand, presented a case where the idea is to facilitate things, to get things rolling through State Agreements. Laurie Humphry talked about problems with a project, showed which wasn't large enough to warrant an Agreement Act and therefore could not have the facilitation of Government legislation to assist him. I think that these two situations contrast.

The next person to speak was Euqene O'Callaghan. Eugene pointed out that now he knew the ropes he's pretty happy with them. He really doesn't want things changed because anything new will mean that there's going to be frustration and a new learning curve, and it'll cost money.

Barry Carbon said essentially the same thing. He pointed out the desirability of leaving things as they are. He was reasonably happy with the EPA. He has a big resource base, and he could handle the things that were requested; he knew the rules. There was probably need for some minor change, but generally he didn't want the assessment process made more complicated. The next speaker, Kevin Wulff, agreed with this.

It's pretty clear when you get to this afternoon's discussion, that a number of people think that because people have found the practicalities of the way the EPA operates to be acceptable, then the EPA is in some wayin the pocket of the developer and, that because we are satisfying them, we, in fact, are not impartial, we are not making a proper decision

and that something ought to be done. The emphasis of people in the late afternoon, that a very long and involved set of rules be established, is in fact, a way of ensuring that this doesn't happen.

John Thomas made the point that if you take into account some economic values you can, in fact, get a more meaningful assessment. He also suggested, as was brought out in the panel discussion, that the conservation reserves themselves should be assessed. Now to me that really raised another issue. If, for example, the Government made an assessment of all the minerals and all the potential values in the State and then auctioned them off this would be a perfectly valid way of doing it. The politics of the situation are that people are allowed to develop these things in a private enterprise sense and that the Government doesn't assess the resources and doesn't auction them off. If you go part of the way to assessing it for the values that you are excluding, then you must go the whole hog and have an assessment system where the Government does everything. With the money situation, it would always be behind and no one will be able to do anything.

Malcolm Hollick wanted to expand procedures and pointed out that while existing procedures might be adequate, an expansion of these procedures is needed so that the whole system is more formalised and more in tune with the general pattern of EIS's everywhere else.

Des O'Connor made the point that what you need to do is to define goals first. The subsequent speaker made the point also that what is being sought is a measure of success. Without the statement of goals, there is no way that you can be sure that you are achieving success. Des also made the point that if you don't have goals, you lose sight of the fact that ultimately what you want is a society that's living in an environment that is acceptable. The rules themselves get in the way of your final goals; they take over in fact.

Peter Johnson really wanted greater accountability, and the way to get greater accountability is to have quite clear cut rules that have to be followed. He didn't really want it to develop into a situation where the rules would intervene, where you had the interpretation of lawyers all the time, but in passing, he sort of suggested that unless it was watched, this was what could happen. Essentially, he was interested in a code, and a code to be followed in detail so that everyone could be assured that once you followed the code all the possibilities would be pursued and you'd get an adequate assessment.

The public participation paper was presented by Geoff Syme. He made the point that it's very difficult to get public participation and to get a meaningful input from the public because many issues are highly technical. Many members of the public believe that people go out of their way to obfuscate issues by using technical terms and making it obtuse when it needn't necessarily be so. They get frustrated. However, if you could actually get people to participate, then you would get a more meaningful assessment and one that was better accepted by the public.

Finally, we had the forum discussion which raised many of the same issues again but discussed them in some detail. I think that the forum itself really indicated that there was substantial support from the floor of this meeting for the views that had been expressed by some of the speakers, particularly in respect of public participation, social values,

and so forth. Conclusions were reached that there are deficiencies in the EPA's assessments which may be because they fail to take into account social issues. It may be that they do not determine things quite fully, or that they rely too much on subsequent management and monitoring. The general feeling from the forum discussion was that if legislation were brought down, which at least spelt out what had to be done, people would feel happier and they would feel that at least they would know where they stood.

If I could now express the views that I have about this issue of formalised procedures and (not because I feel that it's a dangerous thing) I will couch what I say in the most extreme form that I can express, so that the problems are highlighted. I really use these things as illustrations. When we try to interpret what's been said this afternoon, we really are at a stage now when, after 10 or 12 years of EPA functioning, there is sufficient knowledge on the part of people to believe that all the people who have expressed ideas today have a role. Some people wish to have the role expanded, some wish to have the field of endeavour (the field in which they can participate), codified. Some do not want change because they know the rules well enough now and they are frightened that any new rules will be very difficult. The situation really has got to the stage of being, in the technical sense, a game. The people are playing a game in which each participant sees themselves as the perfectly logical, perfectly reasonable, perfectly rational person. Each party sees themselves in that role. Each party does not have that view of the people who fill other roles. They, in fact, see them in some other way. What is happening is that there is neither trust nor belief in the expressed opinions of others. We are getting to the stage now when people, because of this, wish to codify the rules. They wish to have the rules quite clearly set out so that in every case, they know where they can play the rules to their best advantage. However the rules can take over. You can object that all the stages haven't been gone through. You can take it to courts because of various perceptions of the way in which the procedures have been applied.

People lose sight of the fact that it's the environment you are concerned with. There is a possibility that you can have a tactical war in which, by procrastination for long enough, and objection for long enough, it becomes uneconomic for a person to pursue the line of proposal and they then withdraw. There are real possibilities that in a game situation like this (once it's structured very closely) everyone can know the manoeuvre that will enhance their best chances for remaining in the game. To remain in the game, a proponent who is a commercial person has to make money or else he can't pay interest bills and all the other things and stay in the game. He is not credible with his shareholders, he is not credible with the people that provide capital. The lawyer who can't win cases is no longer credible. A conservation group that can't defeat developmental proposals is no longer credible and the structure then will allow everyone to play a game which frustrates everyone else. One of the things that has come out of this is that, in fact, as soon as you get a formal legalised codified situation, there is a great danger that the thing evolves from a situation in which you want the best solution, to one in which you want the best result of a conflict. I think you can see, if you look at what was said this afternoon and look at it in the context of the study of conflict, that you are setting the scene for a very detailed possibility of confrontation.

In all of these things everyone will be fulfilling their role. They will see themselves as the only true prophet, so to speak, and they will ultimately, with codification, remove (as was said repeatedly today) discretion from the power of others. You put the rules in so that discretion cannot apply. Now, practicalities mean that discretion is needed if you need to go from a minor to a major project. There are lots of these where someone has to make a discretionary judgement; if the rules apply then more people are involved, or if there's not more people there's greater delay and there's more frustration.

If you don't want, or you cannot trust people to make, discretionary judgements, then, inevitably, you need to have rules. If you need to have rules, then the danger is that you'll get a codified conflict situation in which people play, in the technical sense, games for the best solution that they can achieve and still remain credible and stay in the game for the next round. This will mean, generally, that the interests of the environment are lost sight of. They are not part of the overall solution that's of most benefit. In order to achieve that there is a case where you don't need to follow a set of rules. The rules cannot cope with the multiplicity of cases and the varying conditions that will evolve as things have gone along. What we should have is protection of the environment and control of pollutants, and not detailed rules with which people can play games.