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ENVIRONMENTAL IMPACT ASSESSMENT AND THE DECISIONMAKING PROCESS

A submission to the House of Representatives Standing Committee on Environment and Conservation's Inquiry into Legislative and Administrative Arrangements Relating to Environmental Protection and Resource Management.

John Formby

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The Australian National University

Centre for Resource and Environmental Studies

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CONTENTS

		Page. No.
INTRODUCTION		1
CONCLUSIONS AND RECOMMENDATIONS		3
SECTION 1	EIA LEGISLATION AND PROCEDURES	9b
1.1	Commonwealth EIA requirements	9b
1.2	State procedures	13
1.3	Comparison with the United States	15
SECTION 2	ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL PLANNING	23
2.1	The EIS and the decisionmaking process	24
2.2	Sequential EIA	26
2.3	Conceptual models of the decisionmaking process	28
2.4	EIA and environmental inputs to planning	31
SECTION 3	EIA AND EXTERNAL INFLUENCES	35
3.1	Liaison with the administering agency	35
3.2	Environmental legislation and administration: overlap, complexity and conflict	38
3.3	Public participation	43
SECTION 4	ENVIRONMENTAL EXPERTISE AND ORGANISATIONS	47
4.1	Environmental consultants and internal expertise	47
4.2	Types of consultants	50
4.3	Environmental planning and internal organisation	53
APPENDIX	BACKGROUND INFORMATION ON THE MONARTO PROPOSAL	56
1.1	Brief history	56
1.2	Monarto - environmental problems and constraints	57
1.3	Environmental impact assessment requirements	58
1.4	The MDC's administrative arrangements for environmental planning	59
1.5	Relative timing of Monarto planning and EIS	60
TABLES AND DIAGRAMS		
TABLE I	Some environmental legislation applicable to Monarto's development	40
TABLE II	Timing of Monarto planning and EIS	61
DIAGRAM I	The 'rational-comprehensive' model	30

ABBREVIATIONS

MDC	Monarto Development Commission
EPD	Environment Planning Division, MDC
EHCD	Commonwealth Department of Environment, Housing and Community Development
EIS	Environmental Impact Statement
EIA	Environmental Impact Assessment
SPA	State Planning Authority
SADEC	South Australian Department of Environment and Conservation (later Department for the Environment)
E & WS	South Australian Engineering and Water Supply Department

SHORT DEFINITIONS

Environment

1. The totality of surroundings which influences, or is influenced by, an organism or group of organisms.

2. The physical and social surroundings of man.

Environmental Impact Assessment (EIA)

The process of obtaining and presenting information about the predicted consequences of proposals for the environment.

Environmental Impact Statement (EIS)

The formal document setting out the results of the EIA process.

Proponent

The individual or organisation responsible for carrying out a proposed action.

Administering Agency

The government department or agency responsible for administering EIA legislation or procedures.

INTRODUCTION

This submission is concerned with the means of ensuring that environmental factors are adequately considered in government and private sector decisionmaking. In particular, it is concerned with the environmental impact assessment (EIA) requirement, which is the Commonwealth government's main initiative in this field.

It is argued in this submission that EIA requirements in Australia have failed to achieve their objective of ensuring that the environmental consequences of proposals are fully taken into account. This has occurred not only because EIA requirements have been inadequately implemented, but also because the EIA requirement in its present form has certain deficiencies as a means of achieving its stated objective.

EIA procedural requirements alone are not a sufficient means of obtaining increased consideration of the environmental consequences of proposals. If they are to function effectively, they must be administered by an agency with adequate staffing, status, and political backing; and supported and supplemented by a range of other measures. A number of such measures are suggested in this submission, together with some proposed modifications to EIA procedures and the way in which they are implemented.

The main conclusions and recommendations are summarised at the beginning of the submission, and subsequent sections provide supporting evidence and detail. Section 1 examines the Commonwealth EIA requirements, and comments also on those of the various States. The Australian experience with EIA is then compared with that of the United States under NEPA.

Section 2 examines certain difficulties involved in reconciling EIA requirements with the planning process, and notes some potential conflicts between EIA requirements and the objective of improving the environmental content of planning and decisionmaking. The discussion is related to some conceptual models of the decisionmaking process.

Section 3 and 4 examine the role and influence of various factors in relation to environmental impact assessment and environmental planning activities. Section 3 deals with influences such as public participation and relationships with other government agencies; Section 4 examines some matters internal to organisations such as the use of consultants and organisational structure.

Much of the supporting material in this submission is drawn from the writer's experience in administering environmental impact assessment and environmental planning at the Monarto Development Commission.* For this reason Appendix 1 provides some background material on Monarto, the MDC and its arrangements for environmental planning, and discusses the timing of planning for Monarto in relation to EIA requirements. However, the submission is based not only on that experience but also on subsequent research into the implementation of EIA elsewhere in Australia and overseas. This research, although not yet complete, generally supports the conclusions drawn from the Monarto experience.

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* The writer is at present carrying out postgraduate research into the implementation of EIA in Australia. He was from 1974 to 1977, Director of Environmental Planning at the Monarto Development Commission.

CONCLUSIONS AND RECOMMENDATIONS

Commonwealth EIA requirements (Section 1.1)

The Commonwealth Environmental Protection (Impact of Proposals) Act 1974-5 and the Procedures under the Act allow for a wide range of Ministerial and administrative discretion in their implementation. Because of these wide discretionary powers, it appears that there will be only a limited role for the Courts in interpreting and exploring the provisions of the Act.

The principal effect of the Act and Procedures is to create a framework for obtaining and reviewing information about the environmental consequences of proposed actions. The Minister administering the Act may make comments and recommendations, but he is given no direct power over decisions as to whether, and in what form, proposals will proceed.

It appears to have been intended to achieve the object of the Act indirectly, e.g., by ensuring the availability of information about the environmental impacts of proposals to decisionmakers and the public. However, the limited way in which the Procedures have been implemented has not provided sufficient impetus to government agencies to meet the object of the Act.

State procedures (Section 1.2)

The States, with the exception of New South Wales, have been less active in relation to EIA than the Commonwealth, and apart from Victoria recently, have not embodied their EIA procedural requirements in legislation.

The system of public environmental inquiry adopted in New South Wales might be examined with advantage by the Commonwealth, which should seek less cumbersome procedures to be applied in some instances where the full weight of a Ranger-type inquiry is not warranted.

Comparison with the United States (Section 1.3)

The implementation of the National Environment Protection Act in the United States has been subject to extensive review by the Courts. Mainly as a consequence, EIA requirements have been implemented more fully than has been the case in Australia. Litigation and the need to comply with EIA requirements have caused project delays, but projects thus affected have been a small proportion of the total reviewed under NEPA.

Although the EIA requirement of NEPA has been reasonably successful in improving consideration of the environmental consequences of decisions, it has been recognised that EIA needs to be more closely integrated with the planning process.

The main environmental benefits of EIA in the United States appear to arise not so much from project modifications or cancellations which are a direct result of EIA findings, as from the gradual internalisation by organisations of environmental consciousness and expertise brought about by the need to comply with the procedural requirements.

In order to obtain more vigorous implementation of EIA requirements in Australia large elements of Ministerial discretion should be removed from the operation of the Procedures; and citizens' rights of standing should be introduced, so that increased judicial review is permitted.

At the same time, however, excessive emphasis should not be placed on the EIA requirement alone - a range of measures should be introduced to improve the environmental content of planning, some of which are discussed in this submission. In considering the desirability of such measures, current economic difficulties should not be allowed to obscure the need for adequate environmental management in the longer-term interests of the community.

The EIS and the decisionmaking process (Section 2.1)

The requirement for a single, comprehensive EIS makes its integration into the overall decisionmaking process difficult. Environmental studies often require long lead times and major decisions therefore tend to be taken before the EIS has been produced.

It is not always a practicable or realistic solution to propose that environmental studies should be started earlier, or that the decision to proceed with a proposal should be delayed until the EIS has been reviewed. Production of an adequate EIS requires substantial commitment of funds and planning resources. Such commitments are often dependent on a reasonably firm undertaking that the project will proceed. Considerable project planning is usually necessary in order to define project parameters sufficiently for informed studies of likely impact to be carried out. As project planning proceeds, *de facto* decisions are likely to be made while environmental studies are still in progress. Governments tend to have short-time horizons and seek to expedite decisions. Once decisions and commitments are made, they are difficult to reverse.

Sequential EIA (Section 2.2)

Because of difficulties such as those outlined above, it would be beneficial for the EIA requirement to be modified for many proposals so that an environmental report is produced at each major decision stage. The level of detail in each report should be appropriate to that of the decision being reached, e.g., a report on impacts at alternative sites would be in much less detail than the subsequent report concerning impacts at the chosen site.

Total documentation and cost should not be greater than under the present EIA system since no report would need to repeat information contained in earlier reports. In fact, given adequate liaison between the administering authority and the proponent costs and documentation should be less, since those preparing reports would not feel bound to cover every possible impact as under the present 'one-off' system. The major benefit of sequential EIA, however, would be to make appropriate environmental information available when each major decision is being made, which the present system generally does not do. An additional benefit would be the possibility of involving the public at an earlier stage.

Conceptual models of the decisionmaking process (Section 2.3)

Academic commentators have increasingly promulgated what public servants already know - that 'rational-comprehensive' models of decision-making do not adequately explain the processes of policy- and decision-making. The relevance of this conclusion here is that a more realistic model of how decisionmaking works, (a) helps explain why EIA procedures, which incorporate large elements of a 'rational-comprehensive' approach, are so difficult to reconcile with existing decisionmaking processes; (b) provides theoretical support for some alternative approaches. For example, Etzioni's 'mixed scanning' approach parallels the sequential approach to EIA suggested above. Rondinelli's interventionist strategy indicates the importance of developing a range of ways of improving the environmental content of decisionmaking, rather than relying heavily on one method.

EIA and environmental inputs to planning (Section 2.4)

The EIA requirement can in some ways conflict with its own objective of 'ensuring ... that matters affecting the environment ... are taken into account'. The resources required to prepare the EIS might otherwise be used to provide ongoing environmental inputs to the planning process. Because the EIA requirements tends to be regarded as an external imposition on the organisation, an unfavourable climate is often created for internal consideration of environmental matters. The emphasis on producing the EIS document tends to de-emphasise the need for subsequent continued environmental planning and safeguards.

However, the EIA requirement can over time bring about changes in internal organisational procedures and the employment of staff with environmental expertise, and such changes have been seen as its main benefit in the United States. The less effective implementation of EIA requirements in Australia, however, has not encouraged organisations to make longer-term internal arrangements for meeting these requirements.

Liaison with the administering agency (Section 3.1)

Close liaison between the proponent and the agency administering the EIA procedures can reduce the emphasis on meeting procedural rather than substantive requirements. It can help ensure that the views of the administering agency are formulated and conveyed to the proponent at an early stage. It permits informed follow-up by the administering agency after the EIS has been produced. The administering agency and the proponent can decide, in consultation, which are the potentially important impacts on which work should be concentrated, thus avoiding an 'omnibus' EIS. Where a number of organisations are involved in a proposal in addition to the proponent, the administering agency can help co-ordinate environmental aspects of their activities to reduce overlap and conflict.

Such activities by the administering agency are extremely important for the successful operation of EIA procedures and generally for improving the environmental content of planning. Staff of the relevant sections of both Commonwealth and State administering agencies are quite inadequate to carry out these functions, and should be increased.

Environmental legislation and administration: overlap, complexity and conflict (Section 3.2)

The EIA requirement, unless it is applied within a strong planning framework, tends to lead to fragmented assessment on a project by project basis, not properly related to other existing or future activities within the affected area.

For many proposals, adequate environmental assessment and control will require the proponent to carry out studies and formulate actions which infringe on the areas of responsibility of a range of other authorities, thus presenting considerable problems of co-ordination, funding and prediction. Again, an environmental agency with sufficient political support, administrative weight, and adequate staffing can carry out much of the task of co-ordination. But it is also important that:

- EIA is carried out within an adequate framework of local, regional and national planning, so that individual projects can be related to each other and reviewed in a broader planning context.
- An adequate inventory of basic data about the existing environment is available on which to base projections of environmental effects.
- Environmental effects are assessed, and environmental inputs provided, at the program and policy levels, as well as for single projects. This will in turn require a substantial presence of environmental expertise within government departments and agencies at the policy level, and in particular within Departments with a policy co-ordinating role such as Prime Minister's and Premier's Departments.

Public participation (Section 3.3)

Early public input is usually more effective than that received in response to the EIS, and should be promoted by the proponent, e.g., by contacting conservation groups and encouraging formation of environmental advisory committees during the early stages of planning.

Conservation groups often lack the organisation and finance to provide adequate and informed comment on proposals affecting the environment. Most of the comment from them on Monarto concerned localised, special interest issues. Greater government financial support should be provided to conservation groups, and particularly to the larger ones such as ACF, so that they can carry out broader review functions adequately.

Environmental consultants and internal expertise (Section 4.1)

It is common in Australia to make heavy use of consultants to carry out environmental studies and prepare EIS's. This strategy is less likely to result in a longer term improvement in the environmental content of the organisation's planning than is the hiring of internal staff with environmental expertise. The use of co-ordinating consultants is undesirable in this respect because they tend to reduce the contact between the organisation's staff and the sub-consultants carrying out the work.

As a general rule, environmental consultants should be used only where their type of expertise is so specialised that it could not be fully utilised internally on a medium- or long-term basis.

It is essential, if environmental factors are to be adequately considered on a continuous and long-term basis, for organisations to possess considerable internal expertise in environmental matters.

The propensity to make heavy use of consultants to carry out EIA reflects the still common view that satisfying environmental requirements is largely a procedural and short-term matter. This view is reinforced by certain aspects of the EIA procedures.

Types of consultants (Section 4.2)

Academic consultants have a tendency towards late completion of work and difficulty in relating their specialist expertise to the needs of the client. On the other hand the quality of their work is generally good and fees comparatively low.

Full-time professional consultants are usually better at working with the client and relating to his requirements. Some are prone, however, to allocate to environmental studies personnel whose main experience lies in other areas.

From an environmental viewpoint, the use of other government agencies as consultants is often disadvantageous. The level of environmental consciousness and expertise in many government agencies is still quite low.

Conservation groups are often a useful source of information on the local environment, and should be used more often on a minor consultancy basis.

Environmental planning and internal organisation (Section 4.3)

A Divisional structure within an organisation accentuates professional rivalries and competition. Environmental planning activity can be particularly affected, because it overlaps into many areas of planning, and longer-established professions frequently consider that environmental matters should fall within their own area of control.

One solution is a more flexible structure of task-oriented teams, which draw upon personnel with different professional skills as required.

SECTION 1

EIA LEGISLATION AND PROCEDURES

As a basis for the discussion elsewhere in this submission, the first few pages of this Section summarise some of the salient features of the Commonwealth EIA legislation,[1] and comment briefly on those of the States. Some conclusions are then drawn from a comparison of Australian and United States implementation of EIA.

1.1 Commonwealth EIA requirements

The Commonwealth Environment Protection (Impact of Proposals) Act 1974-5 falls into three main parts. Sections 1-5 deal with definitions, the object of the Act, and the range of matters to which it applies. Sections 6-10 provide for the preparation of separate Administrative Procedures setting out detailed requirements for EIS; and Sections 11-24 deal with the provisions for public environmental inquiries.

The provision for separate Administrative Procedures for EIA allows greater flexibility, because they may be changed without undergoing the full parliamentary process of legislative amendment. The administrative procedures were promulgated in July 1975.

Some key questions concerning both Act and Procedures are as follows: What is their objective? What is the extent of their application? Under what circumstances is an EIS required? What should an EIS contain? How is the EIS reviewed? What are the provisions for public involvement? Under what circumstances is a public inquiry held? How are the findings of EIS's and public inquiries to be applied?

The stated 'object' of the Act (s.5.1) is 'to ensure to the greatest extent that is practicable, that matters affecting the environment to a significant extent are fully examined and taken into account' in relation to a range of activities. The limited nature of this objective is noteworthy. There is no requirement that projects should be environmentally sound, or meet certain substantive environmental requirements; merely that the environmental consequences of proposed actions are fully considered.

The Act and Procedures, of course, apply only within the constitutional ambit of the Commonwealth Government.[2] Within that ambit, however, the requirements have been given the widest possible potential application, by specifying a complete range of activities, including proposals, works, agreements, decisions and expenditure, where these are carried out by, on behalf of, or in conjunction with the Commonwealth Government, including specifically (s.5.2) 'matters of those kinds arising in relation to financial assistance granted, or proposed to be granted, to the States'.

Given such a broad range of potential application, one must look to the Procedures for detail as to when and how an EIS is required. In simplified form, the main steps in the Procedures are:

- The Minister responsible for an environmentally significant proposed action (the 'action Minister') designates the proponent (1.2.1).* The proponent is generally the person or Department responsible for the execution of the proposed action (1.2.2).
- The proponent submits specified information about the proposed action to the Minister administering the Act 'as soon as possible after a proposed action has been first formulated' (2.1).
- This information is assessed and a decision made as to whether or not an EIS is required. The Department administering the Act may determine that an EIS is *not* required; only the Minister administering the Act may determine that an EIS is required (3.1.1). In making such determinations, the Minister and the Department are required to take into account certain matters specified in 3.1.2 concerning the likely effects of the proposed action on the environment.
- Where an EIS is required, the proponent prepares a draft EIS in accordance with guidelines which specify the matters it must cover. These guidelines are set out in 4.1.
- With certain exceptions, the draft EIS is made available for public comment for a minimum of twenty-eight days (6.3.1).
- A final EIS is prepared by the proponent to take into account public and government agency comment and is submitted to the administering Department for examination (8.1 and 8.2).

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* References to the Procedures are made without prefix, e.g., (1.1); references to the Act are preceded by s., e.g., (s.1.1)

- The administering Minister may require additional information (9.2) before making to the proponent, any 'comments, suggestions or recommendations thought necessary or desirable for the protection of the environment'.
- Each Minister must ensure that the final EIS, and any suggestions or recommendations made under 9.3, are 'taken into account' in matters to which they relate (9.5).
- The administering Minister or his Department may review and assess the environmental aspects of a proposed action during or after its execution, including the effectiveness of any safeguards and the accuracy of forecasts of environmental effects (10.1). They may then make 'comments, suggestions and recommendations concerning any safeguards or standards for the protection of the environment that may be able to be adopted or applied ...' to the proponent and to the action Minister.

Various provisions allow for a wide range of administrative and Ministerial discretion in the operation of the Procedures. The administering Minister, subject to various matters to be 'taken into account', may determine whether an EIS is required (3.1.1(b) and 3.1.3); the matters to be dealt with in the EIS (4.3); whether the draft EIS is to be made available for public comment (6.2.3); whether a public inquiry should be conducted (7.2); whether additional information is required (9.2); whether further review is required (10.1); whether a proposed action or class of proposed actions should be exempted from the requirements of the procedures (11.4); and if the reasons for such an exemption should not be made public (11.5).

The provisions for public inquiry are mainly embodied in the Act itself, rather than in the Procedures. A public inquiry may be held whether or not an EIS has been prepared (s.11.1). An inquiry must be held in public (s.14.1). Witnesses may be required to attend (ss.15, 16) but there appears to be no legally enforceable right for a citizen to attend or give his views. Whether an inquiry should be held or not is left to the discretion of the Minister; and the procedure to be followed is a matter for the discretion of the Commission (s.14.6(a)). The findings and recommendations of a public inquiry have no direct legal consequences for any subsequent decisions by government or the proponent concerning whether, and in what form, to proceed with the proposal.

The preceding outline indicates some conclusions which can be drawn concerning the nature of the Act and Procedures. Their principal effect is to create a framework for a process of obtaining and reviewing information about the environmental consequences of proposed actions. The final decision on whether, and in what form, a proposal should proceed, remains that of the action Minister and his Department (subject to endorsement at higher levels, e.g., Cabinet, in the traditional way). It is apparent that the intention was for the legislation to achieve its objective in an indirect way. By requiring proponents to undergo the process of gathering and analysing information to meet EIS requirements, by having that document exposed to public review, and possibly by undergoing the additional processes of analysis and public scrutiny involved in a public inquiry, it was hoped that proponents would add a broader, environmental perspective to their decision-making processes. This approach might have effect in several ways. Ensuring that the proponents are aware of the environmental consequences of their proposals should lead to such consequences being more fully considered in decisionmaking; the requirement to consider alternative courses of action should increase awareness and consideration of less environmentally damaging alternatives; the need to obtain the skills necessary to carry out EIA should generate an infusion of environmental awareness into staff of proponent agencies; public pressure due to increased public awareness should influence attitudes and decisions within proponent organisations, and so on.

Unfortunately, the results of the Commonwealth legislation in terms of improved consideration of environmental factors in decisionmaking have not been impressive. Evidence in support of this conclusion is provided in later sections when discussing some of the weaknesses of the legislation and its implementation. It is worth noting here that in the first two years of operation of the Commonwealth Procedures approximately 6400 proposals were examined, of which 650 were considered to be of environmental significance. Following detailed review of these latter proposals, it was decided that most of them were not of sufficient environmental importance to warrant the preparation of an EIS. Thirty-three EIS's were formally directed and two public inquiries initiated during the period,[3a] or less than half of one per cent of proposals examined. The corresponding figure under NEPA for the 5½ years to June 30, 1975 was around 3½ per cent, seven times as high.[3b] The proportion of EIS's required in Australia has been quite low, and because of this one could not expect extensive realisation of the kinds of benefits discussed above which might accrue from more thorough implementation of the requirement. Furthermore, the extremely discretionary nature of the Procedures makes their more vigorous implementation seem unlikely. Because of the discretionary provisions, it appears improbable that, in their present form, the operation of the legislation and Procedures (i.e., their implementation by the administering Minister and his Department) can to any great extent be brought under judicial review. This is born out by the fact that the legislation has so far largely avoided a role for the Courts in defining or enforcing its requirements.

1.2 State Procedures

Only one of the six States has passed legislation directly embodying its EIA procedures. Victoria recently passed 'environmental effects' legislation. Most State procedures, however, are given various degrees of indirect support by legislation for land-use planning and pollution control. Although the main features of most State procedures bear a family resemblance to those of the Commonwealth, there are considerable variations both amongst the procedures themselves and in the extent of their implementation.

New South Wales has had the longest and most extensive experience with EIA and environmental inquiries. An environmental impact policy was announced early in 1972 and formal procedures were introduced in 1973. The procedures have since been extensively revised. The current procedures, issued in October 1974,[4] contain some provisions which differ notably from those of the Commonwealth. There is no requirement in the New South Wales procedures for 'draft' and 'final' EIS's. The determining authority must 'seek and take into account' public comment on the EIS, but it need not be revised.

Administration of the New South Wales procedures is more decentralised than in the case of the Commonwealth. The State Pollution Control Commission (SPCC) which has the overall responsibility for ensuring that the procedures are applied, need not become involved in administering the procedures and reviewing the EIS. The specific responsibility for doing so in any particular instance is that of the 'determining authority' - the authority which has the primary responsibility for deciding whether the development should proceed. The SPCC may intervene at any time, but does not normally do so except where the environmental issues are 'of special significance or highly controversial',[5] or where a public authority other than the determining authority objects to a proposal on environmental grounds. When the SPCC does become involved, however, its decisions are said to be binding on public authorities under the terms of Section 13 of the SPCC Act;[6] this contrasts with the Commonwealth requirement that the administering Minister's comments need only be 'taken into account' in decisionmaking.

The New South Wales public inquiry procedure provides an interesting contrast with that of the Commonwealth in the Ranger and Fraser Island cases. New South Wales has developed a less formal and less extensive process. After receipt of submissions, the State Pollution Control Commission summarises the main issues and a list of these provides the agenda for a round-table conference which is attended by those who have made submissions.[7]

The high cost of conducting the Commonwealth inquiries (one conservative estimate for the Ranger Inquiry was $800,000) may have had the unfortunate effect of discouraging the future use of the public inquiry provisions of the Act. The Commonwealth might usefully examine the New South Wales system for use in situations where public inquiry is desirable, but the subject is not of sufficient complexity or national importance to warrant an extensive quasi-judicial inquiry of the Ranger type.

South Australia has no formal EIA procedures but reference is made to a 1973 recommendation by the Environment Protection Council setting out in some detail a proposal for the introduction of EIS legislation, including a description of the recommended legislation and procedures. Draft legislation, differing considerably from these original proposals, has been prepared by the Department for Environment and has been under review for some time. In fact, very few EIS's in a formal sense have been prepared in South Australia.

Until recently, the Western Australian authorities have not favoured formalisation of EIA procedures. Their reasons included the view that separate legislative enforcement would isolate environmental aspects rather than integrating them with the overall management process.[8] Environmental impact assessment, however, has been carried out informally by the Environment Protection Authority in conjunction with other departments and developers. The State has now prepared draft administrative arrangements[9] which include a requirement for 'environmental review and management programs' similar to EIA, to be undertaken by the proponents of environmentally detrimental proposals.

Dealing briefly with the other States: the Queensland procedures[10] emphasise decentralisation of the process of initiation, administration and assessment of EIA to the particular department responsible for approving the proposed development. Recent administrative changes have reinforced this decentralised approach. Tasmania has published EIA procedures.[11] In Victoria the primary emphasis has been on carrying out a program of comprehensive regional environmental studies. Nevertheless, some important EIA's have been completed there, 'guidelines for environment assessment'[12] were published early in 1977, and legislation was passed earlier this year.

Generally, then, the States with the exception of New South Wales have been less active in relation to EIA than the Commonwealth. Most States have avoided any involvement by the judiciary in reviewing the implementation of their procedures by failing to embody the procedures in legislation.

Agreements have been concluded between the Commonwealth and most States to define their respective responsibilities for EIA, and it appears that these agreements are likely to reduce the potential extent of Commonwealth involvement.

1.3 Comparison with United States

Understanding of the Australian approaches to EIA can be increased by a comparison with some features of the United States' experience. Unlike the situation here, the EIS requirement as embodied in NEPA has had extensive effects on the processes of government and on the private sector.[13]

The EIS requirement there arose largely from the 'action forcing' section 102(c) of NEPA which requires that all Federal agencies shall:

> Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on -
>
> i) The environmental impact of the proposed action.
> ii) Any adverse environmental effects which cannot be avoided should the proposal be implemented.
> iii) Alternatives to the proposed action.

iv) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

NEPA did not specify an administrative agency with specific responsibility for its implementation, although it created the Council on Environmental Quality, which later issued a series of Guidelines for preparation of EIA. Much of the force of the Act has arisen, in the absence of a formal administering agency, because the Courts have taken the role of reviewing the implementation of the Act. The scope of review has included preliminary agency determinations whether or not to prepare impact statements, and the degree of thoroughness of statement preparation. The Courts have also to some extent reviewed the actual consideration of environmental factors in decisionmaking (i.e., whether the information contained in the EIS was in fact given sufficient weight in decisionmaking); and in some cases have reviewed the compliance of decisions with the substantive requirements for environmental quality contained elsewhere in NEPA.[14]

The strength and activity of the environmental lobby in the United States has also contributed greatly to the enforcement of the Act, by litigation, by the provision of information, and by politicising environmental issues to a point where environmental coalitions have a strong influence on policy formulation and decisionmaking processes.

Another contributing factor has been the strong American support for freedom of information which meant that provisions of NEPA for greater public involvement and information were well received. The tradition of more open government than is the case here also meant that United States government agencies were not generally faced with a great readjustment of their pre-existing practices with regard to release of information.

The combination of the above factors has brought about a far higher level of implementation of EIA requirements than has been the case in Australia. Two important questions remain - to what extent the high level of EIS production has achieved the overall national environmental policy objectives of NEPA; and whether the environmental benefits have been achieved at an acceptable cost.

Some of the costs and problems of EIA under NEPA include delays in project commencement due to litigation, and the high costs of litigation itself. The CEQ, however, has argued that only a very small proportion of agency actions has been subject to litigation under NEPA.[15] In response to the further criticism that project delays are caused while the EIS is being prepared and undergoing the review process (as distinct from delays due to litigation) CEQ replies that improved integration of EIS preparation with the planning process and earlier commencement of environmental studies is steadily reducing project delays. CEQ has conceded, however, that a failing of the EIA process has been that it '... can and should be more useful in agency planning and decisionmaking.

Environmental assessments and impact statements have substantially improved government decisions over the past six years, but not as consistently or well as they should or can.'[16]

In relation to the question of whether the EIA requirement has achieved NEPA's goal of a better environment through improved Federal decisionmaking, CEQ has pointed to a range of decisions to modify or cancel projects which have been made on environmental grounds resulting from the EIA process.[17] Some other commentators have not been so optimistic about the beneficial results of the process, but there has been a fair measure of agreement that while the immediate results in terms of improved decisionmaking may not be impressive, greater cumulative benefits are becoming apparent over the longer term. Andrews, for instance, argues that NEPA has raised the national consciousness and the level of debate over the consequences of federal actions significantly affecting the quality of the environment. This has occurred in three ways: through the review of environmental information as it passes through the agency originating the proposal; through the reviews and comments of other government agencies; and through the public availability of impact statements. 'The public availability of impact statements, and of agency comments on them has provided an extraordinarily effective vehicle for making non-governmental groups and private citizens aware of government actions affecting them, and for bringing their preferences as well as their knowledge to bear upon those decisions.'[18] These kinds of benefits have not occurred to the same extent in Australia, mainly because the frequency of requirement for EIA has been relatively lower and EIS's have been subject to less stringent review.

A study by A.F. Wichelman identified four stages of implementation of the EIA requirement in the United States: *The Interpretive Phase*, in which government agencies resist implementation and question the applicability of the requirement to their activities; *The Formal Compliance Phase*, where agencies take administrative steps to meet formal requirements of the Act, but, at least initially, these procedural changes do not greatly affect the substantive decisions made; *The Integrated Planning Phase*, in which attention turns from procedural compliance to substantive implementation through integration of environmental review activities with agency decisionmaking routines; and finally, *The Programmatic Planning Phase*, in which environmental assessment is applied not only to specified projects, but to broad programs and policies.

Wichelman argues that the most substantial benefits of EIA do not occur until the later Phases. Amongst the benefits of the Integrated Planning Phase, for example, he includes the following:[19]

- Increased recognition of positive benefit, from environmental assessment.
- Endorsement and promotion of improved integration of environmental assessments into ongoing agency decisionmaking.
- Beginning of consideration of environmental values in long-range planning and policymaking.
- Environmental review becomes securely institutionalised forming a routine part of agency activity, requiring less internal oversight.
- Field staff attitudes become more favourable to environmental review as a consequence of experience in implementing NEPA.
- Educational Programs continue to reinforce learning from experience.
- Experience with NEPA implementation results in increased co-operation and recognition of positive benefits from implementation.
- EIS findings are increasingly integrated into agency decisions, often resulting in incremental changes in the actions taken.
- Environmental considerations are discussed with external interests well in advance of the preparation of the draft EIS.
- Efforts continue within the agencies to improve baseline environmental data and data collection techniques.
- Consultants and contract research are routinely utilised to evaluate impacts involving matters not within agency competence.

Wichelman's study showed that most United States Federal agencies took one to two years to enter the Formal Compliance Phase and about three years to enter the Integrated Planning Phase. In Australia, however, although the situation varies amongst States and between States and Commonwealth, the rate of implementation has been considerably slower. Over 3 years after introduction of the Commonwealth legislation, and considerably longer for some State procedures, in overall terms we remain somewhere between Stage I, the Interpretive Phase, and Stage II, the Formal Compliance Phase. Many environmentally significant projects are carried out without preparation of EIS's, decisions are taken before EIS's are completed, the quality of EIS documentation varies greatly, and the EIA process often bears little relationship to the mainstream of decisionmaking. Whereas in the United States EIA is carried out on programs, and in some cases on policies, as well as individual projects, this is not yet the case here (except for the Ranger Inquiry).

Thus EIA in Australia has not yet reached the later phases which Wichelman sees as providing the most substantial improvement in the environmental dimensions of planning and decisionmaking. Nor does it appear likely that the later phases will be reached under present arrangements, because the rate of implementation of EIA requirements in Australia has slowed even further over the last year or so.

It is recommended here that in order to obtain more vigorous implementation and review of EIA requirements in Australia, large elements of the Ministerial discretion attaching to the operation of the procedures should be removed, and citizens' rights of standing should be introduced, so that judicial review of aspects of the implementation of EIA legislation is permitted. The potential scope of judicial review allowed in this manner need not be as extensive as under NEPA, but if desired, could be confined to a more limited role. For instance, judicial review of decisions as to whether or not an EIS is required could be provided for, but at the same time the extent of judicial review could be limited by providing far more precise prior definition in the legislation than is the case now as to the conditions under which an EIS is required. The agreements now being made between EHCD and various proponent Departments are of this kind, in that they specify the classes of action where an EIS is or is not required; but these agreements are not subject to public scrutiny or review.

It is not suggested here that judicial review and citizen standing are the sole answers to the problems of EIA. It would be preferable by far to introduce these modifications together with a range of other changes, both to the EIA system and to other aspects of environmental management, some of which are discussed elsewhere in this submission.

NOTES AND REFERENCES: SECTION 1

1 For a comprehensive review of the Commonwealth EIA legislation, see D.E. Fisher, 'The Federal Environment Protection Procedures', *Federal Law Review*, Vol.8, No.2 (1977), pp.164-193.

2 For a review of the powers of the Commonwealth Government in relation to the environment, see Douglas J. Whalan, 'The Structure and Nature of Australian Environmental Law', *Federal Law Review* Vol.8, pp.294-318; or Geoffrey Sawer, 'Conservation and the Law', in Rob Dempsey (ed.) *The Politics of Finding Out: Environmental Problems in Australia*, (Cheshire, Melbourne, 1974), pp.168-177).

3a R. Calvert, Commonwealth Department of Environment, Housing and Community Development, personal communication, 22 November 1977.

3b This percentage is based on figures given the U.S. Council on Environmental Quality, *Seventh Annual Report* (1977), p.123, where it is stated that 6000 impact statements were prepared from January 1, 1970 to June 30, 1975. The Report also notes that more than 30,000 actions were examined to see whether they would cause significant environmental effects in financial year 1975 alone. Assuming a similar annual rate during the remainder of the 5½ year period, approximately 3.5 per cent of actions assessed resulted in a requirement for an EIS.

4 New South Wales State Pollution Control Commission, *Principles and Procedures for Environmental Impact Assessment in New South Wales* (1974).

5 New South Wales State Pollution Control Commission, *Principles and Procedures* (1974), p.3.

6 *Principles and Procedures*, s.4.2.5, p.10.

7 For example see State Pollution Control Commission, *Metropolitan Petroleum Pipelines Investigation*, (June 1975), p.4.

8 Brian J. O'Brien, 'Environmental Impact Statements and a "Push-Me-Pull You Approach"', in *Search*, Vol.7, No.6 (June 1976), p.264.

9 P.J. Browne-Cooper, 'Provisional Procedures for Environmental Assessment of New Projects and Proposals in Western Australia', *Proceedings of Environmental Assessment Workshop*, Department of Conservation and Environment, Western Australia (July 1976).

10 Environment Control Council, *Procedural Manual for Environmental Impact Studies in Queensland* (1975).

11 Department of Environment, Tasmania, *Guidelines and Procedures for Environmental Impact Studies* (undated).

12 Ministry for Conservation, Victoria, *Guidelines for Environment Assessment* (1977).

13 For more comprehensive discussions of the effects of NEPA see Richard N.L. Andrews, *Environmental Policy and Administrative Change* (Mass. 1976); or Allan F. Wichelman, 'Administrative Agency Implementation of the National Environmental Policy Act of 1969: A Conceptual Framework for Explaining Differential Response', *Natural Resources Journal*, Vol.16, No.2 (April 1976).

14 F.R. Anderson, *NEPA in the Courts* (Resources for the Future, Baltimore, 1973), p.289.

15 United States Council on Environmental Quality, *Seventh Annual Report* (1976), p.123.

16 United States Council on Environmental Quality, *Environmental Impact Statements: An Analysis of Six Years Experience by Seventy Federal Agencies* (March 1976), p.2.

17 United States Council on Environmental Quality, *Sixth Annual Report* (1975), pp.628-632.

18 F.R. Anderson, Environmental Law Reporter, Vol.6, quoted in 'NEPA is Still a Hard Act to Follow', *Conservation Foundation Letter* (Washington, June 1976).

19 Wichelman, Diagram I.

SECTION 2

ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL PLANNING

The EIA requirement, and in particular the requirement for a single, comprehensive EIS to be produced before decisions are made, is difficult to reconcile with the realities of the planning and decision-making process. Furthermore, the effect of the EIA requirement on decisionmaking is sometimes anomalous. While EIA has the beneficial effects of increasing the use of environmental expertise and the availability of information about the environmental consequences of proposals, the process of meeting EIA requirements can in some ways detract from the best use of the information and expertise thus obtained to provide environmental inputs to the planning process. This Section discusses these points, and suggests some modifications to the EIA requirement.

2.1 The EIS and the decisionmaking process

One of the central problems of environmental impact assessment is the question of the timing of environmental studies and the publication of the EIS in relation to the decisionmaking process. If the EIS is published before major decisions are taken, sufficient information about the details of the proposal may not be available on which to base an assessment of its environmental impact; and there may not have been sufficient time to carry out adequate environmental studies. On the other hand, if the EIS is delayed while adequate studies are carried out, major decisions are likely to have already been taken.

Supporters of the EIS requirement would be likely to argue that the studies required for the EIS are necessary in order to reach balanced decisions, and that therefore no major decisions should be made before the EIS has been published and reviewed. The Commonwealth Procedures are clearly based on this view: 'Before a proposed action is executed, the proponent shall do all things necessary to ensure that these procedures are complied with in relation to the proposed action.'[1]

But the real world situation is not usually so simple, for several reasons:

- Environmental studies require a long lead time. There is a scarcity of existing basic data, ecological systems are complex and the effect of man's actions on them poorly understood, there is a shortage of expertise in carrying out environmental studies, and, ideally, data may need to be collected over several years to allow for factors such as seasonal variations.

- Environmental impact assessment requires detailed knowledge of project parameters. Planning of the project must be undertaken in sufficient detail to clarify what the significant impacts of the project will be. Given the nature of political and economic systems, however, once planning proceeds, firm decisions are likely to be taken and resources committed. Politics tends to have fairly short time horizons, and once a decision in principle is taken that a certain proposal is desirable, political decisionmakers are unlikely to wait for one or two years for the completion of environmental studies to confirm their decision. Economic costs of proposals increase with such delays. A two year delay may make the difference between economic viability or otherwise for commercial projects. Furthermore, the proponent may be unwilling to commit planning resources and bear environmental study costs if there is some doubt that the proje-t will be allowed to proceed.

For the sake of illustration, let us examine the points at which EIA might have been required during planning of the Monarto project (see also Table II, Appendix). The first major decision was whether a new growth centre should be developed at all, or whether alternatives such as the continued expansion of Adelaide, the development of higher densities within it, the development of existing country towns, or the development of a linear city concept would be preferable. Such alternatives were broadly discussed in a State Planning Authority publication, and the decision ultimately made by State Cabinet that a program of decentralisation was necessary, and that development of a new city within the State would be the best way to achieve this. Under one interpretation of the EIA requirement, however, it might be argued that an EIS should have been produced in support of that decision. (The Commonwealth Act, for instance, applies not only to 'the carrying out of works and other projects', but to 'the formulation of proposals' and the 'making of ... decisions and recommendations' (s.5.1). In the United States, EIA is slowly being extended to policies and programs as well as specific projects.)

Having taken the decision to develop a new city, the second major decision was the selection of the general site area from all other possibilities within South Australia. That choice was made on the recommendation of the advisory committee established by State Cabinet in September 1971. It may be argued that an EIS should have been prepared concerning the general choice of site area also.

Once the decision had been taken to establish the new city within 30 km of Murray Bridge a further review of alternatives was necessary to establish the precise location of the site within the 30 km radius, and this recommendation was made by the State Planning Authority. Once more, it could be argued that an EIS should have been prepared on the choice of alternatives within the 30 km radius. Having selected the site area, however, many of the environmental impacts of the new city still could not be identified because planning was not sufficiently advanced. A fifth stage at which an EIS might have been required, then, was that of reviewing alternative urban configurations within the selected site. Subsequently, more detailed planning was undertaken for particular stages of development over time within the overall configuration, and for the location and form of particular facilities. These too could have required preparation of EIS's before approval. Thus there are at least six stages at which EIA might have been carried out and EIS's prepared in the Monarto case.

It is not argued here that full EIS's should have been prepared at each of these stages. The point being made is that there was not just one major decision to proceed, but several major decision stages and an EIS produced at only one of these decision points would have failed to cover the others adequately. The example also illustrates the poor compatibility of the political decisionmaking process with the idealised process required by EIS procedures. It is difficult to envisage political decisionmakers, in similar cases to Monarto, being willing to commit sufficient funds, and allow sufficient time, for thorough planning and environmental studies to be carried out before making firm decisions.

Thirdly, the Monarto example illustrates the involvement of different organisations at various stages of the decisionmaking process. Four different bodies had the central role in the decisionmaking process at successive stages - State Cabinet, the committee chaired by the Minister for Conservation, the State Planning Authority, and the MDC. This demonstrates a difficulty in nominating the 'proponent' responsible for preparing the EIS in such cases. The Commonwealth Procedures (para. 1.4) state that 'as far as convenient, the person or Department responsible for executing the proposed action should be designated as the proponent'. In the case of Monarto this was the MDC, but the MDC did not exist when the site was selected and the decision made to proceed with the development. Thus the requirement that the EIS should be produced by the proponent *before* decisions to proceed are made would have been difficult to meet. In the event, the EIS was produced well after decisions to proceed were made. In such cases EIS requirements become either largely a costly exercise in legitimising decisions already taken, or the less likely alternative occurs that earlier decisions are reversed as a result of the EIS, with the consequent waste of work and resources already committed.

The Monarto case shows that the complexity and continuity of the decisionmaking process is such that it is very difficult to impose on it a requirement that an EIS should be produced and reviewed before decisions are made. Of course, many projects are of a simpler nature than the planning of a new urban development. Nevertheless the example demonstrates some major difficulties of the EIS concept, particularly in relation to large-scale planning and decisionmaking for complex proposals.

Because of such difficulties, to achieve the objective of EIA either conventional planning and decisionmaking processes will need to be altered considerably so that the results of EIA play a meaningful part in decisionmaking; or formal EIA procedures will have to be modified or alternative measures introduced. In the former case, politicians and the community would have to be persuaded not to make firm decisions to proceed with proposals, sometimes for several years, while at the same time committing considerable resources to permit planning and environmental studies to be carried out in sufficient detail to produce an adequate EIS. In the latter case, EIA requirements would need to be modified to enable their closer integration with conventional planning processes.

2.2 Sequential EIA

The modification to EIA requirements suggested here is basically a simple one - that of staging or phasing the EIS for certain kinds of proposal, so that an environmental report is produced at each major decision stage of the proposal. There is an important condition attached to this suggestion, however. That is, that the level of detail in each successive environmental report should be appropriate to that of the decision being reached and that no report should repeat information contained in preceding reports. This condition would ensure that the total amount of work required for a series of reports would be no greater than that required for a single EIS. The difference is that under the sequential approach, the appropriate information would be available at the time each successive major decision is made. For example, depending on the type of project, environmental reports might be produced (along with economic and other reports) when a decision is made in principle to proceed with a proposal, when a decision has to be made between alternative sites, and at a subsequent point where planning has advanced sufficiently to identify the more detailed impacts on the chosen site. Each successive report would look in greater detail at a decreasing range of possibilities. Thus the initial report on alternative sites, for example, would compare the environmental parameters and likely major impacts of the alternatives at a much less detailed level than the subsequent review of advanced plans for the chosen site.

An approach embodying sequential environmental reports would require close liaison between the government agency administering environmental reporting requirements and the proponent(s) of the proposal, in order to decide the appropriate timing and content of the environmental reports. It is argued in a subsequent section that close liaison is in in any case desirable. It would also be necessary, to achieve the aim of public participation embodied in the requirement, to make each environmental report available to the public. On the other hand, 'draft' and 'final' documents would no longer be required, since public comments on any environmental report except the last, could be incorporated in the one subsequent to it.

The MDC itself followed the sequential approach in a sense by producing Phase I and Phase II EIS's. But because many major decisions had been taken before the production of the Phase I EIS, phasing did not fully have the desired effect of linking planning and environmental studies closely, although it did assist considerably in this direction. The environmental studies in Phase II had 'caught up' a great deal and were more closely related to current planning needs.

Commentators on the United States' experience under NEPA have supported the sequential approach. For example, Anderson writes:

> Intermittently, we endorsed what we believe to be a more rational approach to impact statement preparation through overlapping 'tiers' of statements. We think this suggestion is important enough to merit a final word here. Under this approach, the first statement prepared would cover pending legislation or broad, new federal policies; statements to follow would be prepared as each distinct initiative in implementing the legislation or policy was formulated. The later statements would cover increasingly

> specific programmatic initiatives and impacts, and would refer back to the wider, policy-oriented statements for their treatment of far-ranging alternatives and basic federal policy.
>
> Numerous advantages could be obtained through this approach. It would establish a record of least-cost gradually circumscribed decision making without subjecting the agency to recondiseration of basic principles each time a specific action was contemplated. For instance, the alternative of flood-plain zoning could be exhaustively considered in an early comprehensive statement on the best way to manage a river basin; that alternative need not then be comprehensively reconsidered in statements on particular projects if the decision is made to construct a series of dams or river levees. The latter statements could focus on localized impacts, without the agency's having failed to give the comprehensive, early environmental review called for by NEPA.[2]

2.3 Conceptual models of the decisionmaking process

The strategy of producing sequential environmental reports can also be justified from the current theoretical literature concerning the policymaking and decisionmaking process.

For many years, conceptions of the decisionmaking process held by academics, and by many management consultants and other professionals working in applied fields, centred on what has been termed the 'rational-comprehensive' model of decisionmaking.

Essential elements of this model are a comprehensive approach to decisionmaking requiring the identification and weighting of all relevant values, resources, and goals; the prediction of the consequences of all feasible alternatives for achieving these goals based on comprehensive collection and analysis of all necessary data; and identification of the alternative with the highest net expectation in terms of meeting the predetermined goals. A representation of the rational-comprehensive model is shown in Diagram I.

The model was put forward as an ideal representation of the way in which planning should work, but it was also used by many writers as the central paradigm for *explaining* the way the policies, decisions and actions of government were arrived at. There have always been commentators, however, who argued that government decisions could not be satisfactorily analysed and explained with reference to the rational model. Henry Simon, for example, drew attention to 'satisficing' - the view that a decision-maker will accept the first satisfactory solution available, rather than pursuing the best solution.

More recently, there has been a growing acceptance of the need for other explanatory models of decisionmaking process. An example is Lindblom's 'incrementalism' - based on the observation that many policy changes occur gradually by way of marginal changes to past policies and expenditure levels.[3] Changes tend to occur incrementally for a number of reasons including financial and psychological commitment to past policies. The important effects on decisionmaking of various organisational and institutional constraints have also been increasingly recognised - such factors include prevailing values and professional attitudes within organisations, accepted decisionmaking procedures and organisational goals, and other constraints imposed by existing legal and administrative structures.

Models of decisionmaking such as Allison's 'bureaucratic politics' paradigm have been suggested as providing better explanation of decision-making than the rational-comprehensive model. The bureaucratic politics paradigm for example:

> ... sees no unitary actor but rather many actors as players - players who focus not on a single strategic issue but on many diverse intra-national problems as well. Players choose in terms of no consistent set of strategic objectives, but rather according to various conceptions of national security, organisational, domestic, and personal interests. Players make governmental decisions not by a single rational choice, but by pulling and hauling.[4]

Although originally expressed in terms of foreign policy decision-making, the underlying concepts of the bureaucratic politics model can be applied to domestic policymaking processes.

Accepting that such models often represent actual decisionmaking processes, some writers have suggested that rather than trying to 'improve' decisionmaking by imposing the rational-comprehensive model on it, we should seek less drastic modifications; or design interventionist strategies which accept the complex, often disjointed nature of the decisionmaking process, rather than trying to change it.

Etzioni[5] follows the first of these strategies by suggesting a 'mixed scanning' approach. This suggests, essentially, that rather than attempting to review all possible alternatives and obtain and examine all data, decisionmaking should be carried out in a series of stages progressing from the general to the particular. At each stage the number of possible solutions is reduced, but the degree of detail required becomes greater as the focus of decisionmaking becomes finer.

DIAGRAM I

THE 'RATIONAL-COMPREHENSIVE' MODEL

Input: all necessary data on values, resources, alternatives, consequences

↓ ↓

Identify and weight all relevant societal values and resources

↓

Establish and weight all operational goals

↓

Describe all possible alternative plans

↓

Predict all the consequences of each alternative plan

↓

Calculate the net expectation of each alternative

↓

Compare net expectations and identify the alternative with the highest

↓

Output: rational plan

The second strategy is proposed by Rondinelli,[6] who argues that a range of planning styles need to be recognised and developed for intervening at various stages of the planning process.

This discussion of the literature has been pursued here because of its clear application to EIA and its relationship to the planning process. The EIA requirement is an attempt to impose a rational-comprehensive approach on the planning process in relation to proposals with a significant anticipated environmental impact. All the ingredients are there: for example, the requirement for a statement of the objectives of the proposed action, for examination of 'any feasible and prudent alternative to the proposed action, including, in particular, the primary, secondary, short-term, long-term, adverse and beneficial effects on the environment of the proposed action and of any feasible and prudent alternative to the proposed action' (Procedures 4.1(h)), and so on.

The EIA requirement, then, suffers from all the problems which arise from attempting to impose rational-comprehensive procedures on the quite dissimilar real-world planning process. The analogy between Etzioni's alternative 'mixed-scanning' solution and the sequential approach to EIA proposed in the preceding section is clear, as is the implication of Rondinelli's interventionist approach, that as well as attempting to modify the EIA requirement, other strategies should be sought to improve the environmental content of planning. Some possibilities of this kind are discussed in later sections.

2.4 EIA and environmental inputs to planning

Preceding sections have pointed out some of the difficulties of reconciling EIA requirements and the planning process. There may, moreover, be a more direct conflict between the functions of carrying out EIA and producing an EIS, and those of providing environmental inputs to the planning process.

The EIA process is designed to ensure that the environmental consequences of proposals are taken into account in decisionmaking. It does this both by informing the public, other government agencies, and decisionmakers about the environmental consequences of the proposals and by obtaining information and comment from them about environmental consequences. It is thus both externally directed to the public and other agencies, and internally directed to decisionmakers within the proponent organisation. EIA is intended firstly to ensure that the decision to proceed with a proposal is taken with due regard for the proposal's likely environmental impact. Secondly it is intended to ensure that if a proposal does proceed, it will be planned in a way which takes environmental, as well as economic and technical considerations, fully into account.

These functions, however, can conflict. The function of producing an EIS document for external information and review can detract from that of ensuring that adequate inputs of information and advice are fed into the planning process, for a number of reasons:

- The considerable time and effort required to assemble the data for an EIS, and write and publish it, diverts effort which might otherwise be spent on providing ongoing environmental inputs to the planning process.
- Because of the tendency for the EIS to be produced out of phase with the actual planning process, the information which it contains tends to have little influence in project planning. (See Section 2.1).
- The need to prepare an EIS is often seen as an external imposition, which is resented, and an unfavourable climate is therefore produced towards those within the organisation who are concerned with producing it, which in turn handicaps their efforts to provide environmental inputs to subsequent planning.
- The provisions of the Commonwealth Act largely revolve around the decision as to whether the project should proceed or not, with little attention being given to the need to ensure that the ongoing, detailed project planning should be environmentally acceptable, or to subsequent review to see whether the predictions of environmental impact in the EIS were accurate.[7]

On the other hand, the need to comply with the requirements of the Act does tend to bring about the hiring, by proponents, of staff with some environmental expertise. Alan F. Wichelman, in his study[8] of the implementation of the United States National Environment Policy Act (NEPA) argues that from an environmental viewpoint, the major benefits of NEPA have arisen not so much from its formal review requirements as from the consequent appointment of staff and the creation of groups with environmental expertise within organisations in order to meet the requirements of the Act. Where these groups have gradually become accepted within the organisation they have been able increasingly to influence the planning and decisionmaking process.

A number of points emerge from the above comments. The Commonwealth procedures, and those of the States, are not implemented as thoroughly and frequently as those arising from NEPA (see Section 1). Hence there is less pressure on organisations to make any longer term commitment to environmental inputs by employing appropriately qualified staff. More rigorous implementation of Commonwealth and State procedures would result in the production of more EIS's and eventually in the employment of more internal staff with environmental expertise. However, to help reduce some of the potential conflicts between the functions of preparing EIS's and providing environmental inputs to planning, various other changes are desirable in addition to more vigorous implementation of EIA requirements. These include closer liaison between the environmental agency and the proponent; changes in the format of the EIA including the sequential approach already discussed, in arrangements for public participation and in provisions for follow-up after the EIA has been produced. These points are developed in Section 3.

NOTES AND REFERENCES: SECTION 2

1 Commonwealth of Australia, *Administrative Procedures under the Environment Protection (Impact of Proposals) Act 1974-1975*, para. 1.3.

2 F.R. Anderson, *NEPA in the Courts*, (Resources for the Future, Baltimore, 1973) p.290.

3 Charles E. Lindblom, 'The Science of "Muddling Through"', *Public Administration Review* Vol.19, No.2 (1959). For a different view, see Yehezkel Dror, 'Muddling Through - "Science" or Inertia', *Public Administration Review* Vol.24 (September 1964), pp.153-165.

4 Graham T. Allison and Morton H. Halperin, 'Bureaucratic Politics: A Paradigm and Some policy Implications', *World Politics* Vol.24, (1971-72), pp.41-79. For a different view, see Desmond J. Ball, The Blind Man and the Elephant: A Critique of Bureaucratic Politics Theory', *Australian Outlook* Vol.28, No.1 (1974), pp.11-92.

5 A. Etzioni, *The Active Society*, (Free Press, New York, 1959), p.284.

6 Dennis A. Rondinelli, 'Public Planning and Political Strategy', *Long Range Planning* (April 1976).

7 'Follow up' provisions are included in paragraphs 10.1 and 10.2 of the Procedures.

8 Allan F. Wichelman, 'Administrative Agency Implementation of the National Environmental Policy Act of 1969: A Conceptual Framework for Explaining Differential Response', *Natural Resources Journal* Vol.16, No.2 (April 1976).

SECTION 3

EIA AND EXTERNAL INFLUENCES

The success of EIA and environmental planning are affected by factors internal and external to the proponent organisation. This section discusses three important external influences: the relationship between the proponent and the agency administering EIA; the problems resulting from overlap of the proponent organisation's responsibilities for EIA with those of other organisations; and the role of public participation.

3.1 Liaison with the administering agency

Adequate liaison between the proponent and the administering agency is an important condition for success of the EIA process. There is a need to strike a balance between adherence to procedural requirements, and ensuring that the substantive objectives of EIA are being met. These points may be illustrated from the Monarto case.

Two administering agencies were involved with the EIS for Monarto: the Commonwealth Department of Environment, and the South Australian Department of Environment and Conservation (SADEC). During the period under review, the Commonwealth Department was greatly affected by Federal political and administrative changes, in particular by the change in government in late 1975, the Department's subsequent amalgamation into the Department of Environment, Housing and Community Development (EHCD) in December 1975, and the reductions in staff dealing with environmental matters which followed these changes.

Both State and Federal Departments also suffered the disadvantage of having a responsible Minister quite low in Ministerial rankings; and in general the influence of both Departments over matters affecting the environment probably declined over the period, more so in the case of the Commonwealth Department.

At that time there was no clear agreement between the two Departments as to which should have the primary responsibility for reviewing the environmental aspects of State projects with Federal funding such as Monarto. The MDC was therefore required to liaise with both Departments concerning the preparation of the EIS. In the event, there was not close or frequent liaison between the MDC and either Department, and the majority of efforts in this direction were initiated by MDC staff. For example, the Director EPD made several visits to Canberra, but no member of the Department visited the MDC. Most contacts with SADEC also were initiated by the MDC. Project officers within both Departments responsible for liaison with the MDC underwent several changes, and there were sometimes long delays in answering correspondence. Staff shortages and administrative changes in both departments were to a large extent responsible for these failings. But there was also a lack of recognition of the *need* for closer liaison and co-ordination. One senior South Australian environmental administrator, for example, said that proponents preparing EIS's were 'on their own' and should not expect to receive guidance from the Department.

It is suggested here that such an approach is the reverse of that which should be taken, for several reasons. In the first place, the failure of the Departments to provide close liaison is linked to an excessive emphasis on meeting procedural, rather than substantive requirements. This is not an argument for not having procedural requirements, but it must be borne in mind that procedural requirements are a means to the end of ensuring that matters affecting the environment are fully taken into account. It is more important to ensure that this end has been met than that procedures have been conformed with; yet there appears to be a tendency to overemphasise procedural requirements at the expense of the overall purpose. Andrews[1] notes that in the United States, the Council for Environmental Quality's guidelines for EIA put increasing emphasis in later revisions on NEPA's substantive policy, rather than its requirement for detailed statements. By working more closely with the proponent, the reviewing agency can not only make a more informed assessment of how well environmental factors are being considered in planning, but can help to ensure that emphasis is placed on environmental inputs to planning, and not simply on preparation of EIS documentation.

Given close liaison, the reviewing agency can not only review the letter of the EIS, but also apply its knowledge of how well the proponent is meeting the overall object of the Act. The reviewing agency should be willing to accept a less detailed and extensive EIS if it is satisfied with the extent to which environmental factors are being considered in planning.

One great benefit of closer liaison is that it helps prevent extensive criticisms of the EIS by the reviewing agency, and subsequent costly delays for further studies and/or revision. Comments were made on the Phase I Monarto EIS by both EHCD and SADEC which should have been made earlier. For example, the EIS was criticised by EHCD for examining mainly biogeophysical impacts, rather than social impacts. Yet the proposed content of environmental studies had been set out in both the Plan for Environmental Study (January 1975) and the Environmental Study Progress Report (April 1975); and discussed with EHCD representatives. But, perhaps because of the changes of EHCD project officer responsible for Monarto, the message had not got through. More effective liaison could have remedied the situation earlier, and it would also have established that the MDC was taking strong steps to consider and plan for the sociological aspects of the development and that even though these steps were not fully documented in the EIS format, they had been documented elsewhere.

Closer liaison also has other advantages. It permits informed follow-up by the reviewing agency after the proposal proceeds, in order to ensure that environmental safeguards and other undertakings are carried out, and that environmental matters continue to be given adequate consideration. The reviewing authority can establish requirements and 'boundary conditions' for the environmental studies to be carried out by the proponent, and can help co-ordinate the required environmental studies with other organisations.

The last two points deserve further discussion. For any reasonably large project, there is an almost infinite range of potential impacts which can be studied. Many have criticised the encyclopaedic nature of some EIS's, particularly those produced in the early stages of implementing the EIS requirement. Such EIS's list every possible impact, rather than concentrating effort on the important ones. The matrix approach is particularly susceptible to this problem.[2] But the nature of the procedural requirements, in the absence of close liaison with the reviewing authority, makes it prudent for the proponent to try to cover as wide a range of impacts as possible, in order to avoid subsequent criticism of having missed some out. This problem could be avoided if the reviewing agency and the proponent could come to fairly early agreement as to which possible impacts should be examined and in what depth. In the case of Monarto, the MDC published information about the proposed studies, but little response was received from the administering agencies.

The problems of defining the boundaries and content of environmental studies are compounded by the tangle of overlapping legislative and administrative responsibility for planning and environmental matters, and the consequent problems of divided and sometimes conflicting responsibility for the conduct of environmental studies and the collection of data. The environmental agency, given sufficient political and administrative support, has the potential to assist the proponent by intervening and helping solve problems of overlapping authority, by co-ordinating the various programs of environmental studies carried out by different bodies, and by acting as a clearing house to provide information and expertise about environmental legislation and administration, about environmental data already available, and about studies which are under way. Unless the environmental agency can provide these services, individual organisations are forced to each duplicate the task of finding out what is being done by others, what the relevant statutes are, and what information is already available. Lacking co-ordination, resources are wasted on overlapping or repititious studies and on data which cannot be compared because of differing methodologies. Unfortunately most, if not all, environmental agencies in Australia have insufficient staff and influence to carry out such tasks of liaison and co-ordination adequately.

3.2 Environmental legislation and administration: overlap, complexity and conflict

The proponent responsible for preparing the EIA is required to assess the potential impact on the environment of the proposed action and of any feasible or prudent alternative to the proposed action. This deceptively simple-sounding requirement immediately introduces two potentially major problems. The first is that the requirement tends to lead to assessment of individual proposals in isolation from other activities and proposals which are proceeding or proposed in the same regional or national setting. In other words, to assess the environmental effects of a proposal properly, these effects must be examined together with the overlapping effects of other proposals and activities. To take account of all such factors can be beyond the resources of the individual proponent. The report 'Sydney's Environmental Amenity 1970-75' made the point this way:

> The environmental impact statement by itself is an inadequate procedure to protect the metropolitan environment. It is an administrative device that induces thinking about very small parts of the urban system on a project by project basis, each at a particular place at a particular time. This has been most clearly displayed in the controversies over the Botany Bay Port development. Each impact statement does not take into account cumulative deterioration of the environment arising from a succession of individual developments at particular locations.[3]

The second, and related problem is that in carrying out such assessments, the proponent organisation is likely to be stepping into the areas of statutory powers of other organisations. There is no reason why the physical and social limits of the environmental impact of a proposal should coincide with the physical or legal boundaries of the proponent organisation's responsibilities. Even within those latter boundaries, a complex assortment of legal requirements are likely to apply.

In a report prepared for the MDC, David Cole[4] identified 19 statutes relevant to the physical environment of Monarto. Some of these related to more than one aspect of the physical environment. (See Table I). They were administered by a range of government agencies. This was a preliminary survey, however. A SADEC paper in 1973 listed sixty-one Acts related to environmental protection, many of which would have had significance for Monarto.

Land use and planning controls alone present a complex picture for the Monarto region. The region is subject to two Development Plans, the Outer Metropolitan and Draft Murray Mallee. These plans contain both broad environmental principles and more specific environmental provisions. Six of the local councils within the region were preparing detailed local plans. Until such plans are operational, Interim Development Controls are applicable to changes in land use and building. The State Planning Authority (SPA) exercises Interim Development Control over a wide corridor of land between Adelaide and Monarto. Other government land use controls operating within the region included joint land use control by the MDC and SPA for 10 km outside the boundary of the Monarto site; SPA control of land use changes along the River Murray within two kilometres of the 1956 flood level; watershed controls drawn up by the Engineering and Water Supply Department; and controls over land acquired by various government departments for specific purposes (e.g., recreation reserves, sanctuaries, public works reserves).

In addition to these administrative and legislative controls, a considerable range of environmental and land use studies had been carried out or were in progress in the region. Furthermore, a large number of organisations were involved in the physical development of Monarto, or would be affected by it and hence their activities and views needed to be taken into account.

TABLE I

SOME ENVIRONMENTAL LEGISLATION APPLICABLE TO MONARTO'S DEVELOPMENT

I Base Legislation

a) Murray New Town (Land Acquisition Act, 1972
b) Monarto Development Commission Act, 1973
c) Murray New Town (Land Acquisition) Amendment Act

II Commonwealth Environment Protection (Impact of Proposals) Act, 1974

III State Laws Relating to the Environment

(1) Water Resources

a)	River Murray Waters Act,	1935-1971
b)	Water Conservation Act,	1936-1972
c)	Waterworks Act,	1932-1969
d)	Water Conservation Act,	1936-1975
e)	Local Government Act,	1934-1975
f)	Water Resources Act,	1976

(2) Planning and Development Act, 1966-1975

(3) The Building Act, 1970-1971

(4) Waste Management - Control of Contamination of Air, Land and Waters

Industrial - Solids and Liquids

a)	Local Government Act,	1934-1975
b)	Police Offences Act,	1953-1974

- Air Pollution

a) Local Government Act, 1934-1975
b) Health Act, 1935-1973 (and Regulations)

Non-Industrial - Liquids and Solids

a)	Sewerage Act,	1929-1972
b)	Local Government Act,	1934-1975
c)	Beverage Container Act,	1975

- Air Pollution

a) Common Law
b) Health Act, 1935-1973 (and Regulations)
c) Local Government Act, 1934-1975
c) Road Traffic Act, 1961-1975

(5) Noise Pollution

- Vehicular Noise

a) Road Traffic Act, 1961-1975
b) Local Government Act, 1934-1975

- Domestic Noise

a) Police Offences Act, 1953-1974

- Industrial Noise

a) Local Government Act, 1934-1975
b) Noise Abatement Bill, 1976

(6) Road Configuration and Dimensions

a) Planning and Development Act, 1966-1975
b) Local Government Act, 1934-1975
c) Highways Act, 1926-1975

Source: David Cole, *A Preliminary Investigation into Legislation Relevant to the Physical Environment of the Proposed City of Monarto.* (Report to MDC, 1976).

Many of the investigations undertaken in order to predict the environmental impacts of Monarto transgressed on areas administered by other organisations. For example, the establishment of Monarto would result in significant environmental effects on adjacent reaches of the Murray, both from increased recreational pressure and possibly from pollution contained in site runoff. But control of land use along the Murray foreshores is the responsibility of the SPA, and responsibility for water quality that of the E & WS Department. Therefore, any proposed studies aimed at identifying impact should be co-ordinated with those authorities, any recommendations made as a result would need to be accepted by them, and any predictions of environmental impact would need to take into account the likely future actions of both those and other government agencies. This example can be multiplied many times over the range of possible regional impacts arising from the development.

Situations requiring co-ordination with other Departments tended to have certain outcomes in common. For instance, there was often a degree of resistance by the staff of the government agency involved to what they saw as an intrusion on their organisation's area of authority. Such resistance arose partly from lack of understanding of the ramifications of the EIA requirement, partly from disagreement with the EIA concept itself, and partly from less clearly distinguishable motives such as organisational and professional allegiances. A typical reaction (sometimes from within as well as outside the MDC) was 'why should the MDC be involved in regional studies? - they are the responsibility of the SPA (or the E & WS, etc.)'.

A related point which emerged was the difficulty of influencing the established programs and decisions of other government agencies. This was demonstrated also in areas other than environmental studies, and may have been due to some extent to doubts concerning the continuation of the project. This was not the sole reason, however. It is natural that a government agency faced with a request to alter its programs to carry out work or supply data, will be reluctant to do so if the purpose is not directly related to its own objectives. Even if it complies, it is unlikely to treat the matter with the same sense of urgency as a proponent faced with the task of preparing an EIS and carrying out planning activities within tight time constraints. In such a situation the proponent is faced with either revising time horizons, producing an incomplete EIS, or carrying out studies (if sufficient funds are available) which might have been better carried out by Departments with pre-existing expertise, facilities and data.

One other point mentioned above should be enlarged on; that is, the problem of prediction of the future actions of other government agencies. It is not possible to predict the amount of environmental damage likely or the level of pollution resulting from a proposal, without making some predictions or assumptions about the likely extent of preventive action by government agencies. It is often difficult to make such predictions meaningful. An attempt to predict the environmental impact of recreation in a given area, for example, needs as an input a knowledge of the likely future program of acquisition and maintenance of recreation areas. Such information is often simply not available, and assumptions have to be made which may bear little relation to future reality. Part of the problem arises because the proponent whose actions will be creating the impacts does not have the responsibility for the measures which may be taken to reduce them. Hence the proponent cannot meaningfully make, or be held to, undertakings made in the EIA for future preventative action and safeguards.

Similar problems of divided authority and fragmentation are apparent in other areas of government planning as well as those relating to the environment, as others have pointed out.[5] In the environmental arena several things are necessary to improve the situation. The first is an environmental agency with sufficient political support, administrative weight, and adequate staffing to perform a co-ordinating role which can remove from proponents preparing EIA's the larger part of the co-ordinating task.

Secondly, it is necessary, if EIA for individual projects are to be effective, for assessment to be carried out within an adequate framework of local, regional and national planning, so that each project and its effects can be related to others and reviewed in a broader planning context.

Thirdly, it is important to have an adequate inventory of basic data about the existing environment, again at local, regional and national levels. Such basic data may require years to obtain for a particular area, and in its absence the proponent is faced with either long delays or with making inaccurate predictions from an inadequate base.

Fourthly, the environmental effects of programs and policies, as well as those of individual projects, must be assessed. In many cases, to assess individual projects is insufficient, since the important questions concern the overall program or policy of which the single projects are a part. Extension of EIA requirements to the policy and program levels, backed by a strong environmental agency, is necessary but in itself not sufficient to provide day-to-day environmental input to policymaking. To meet this need, a substantial presence of environmental expertise at the policy level is required, particularly within policy co-ordinating agencies such as Prime Minister's, or at State level, Premier's Departments.

3.3 Public participation

Few proposals for improving the planning process could have had more extensive discussion and review than public participation. Nor has any proposed improvement to the planning process received greater advocacy. But promise appears to be outstripping performance.

The MDC Act (S.3(2)(c)) required the MDC to afford the citizens of Monarto 'opportunity to participate in the formulation of policy on which ... decisions are based'. In a report prepared for the MDC,[6] Leonie Sandercock reviewed the issue of public participation in planning and made recommendations for further action by the MDC to involve the future population of Monarto in planning. The present discussion does not attempt to review most of the more general issues covered in that report. It simply examines briefly the MDC's experience with public participation in relation to environmental planning and EIA.

The MDC utilised several means for obtaining public participation, including public exhibitions and publication of separate sets of documentation concerning town planning, social planning and environmental impact assessment. In accordance with the Commonwealth Procedures (S.6) and the State requirements, the Phase I Monarto EIS was made available for public comment. Public comment related to environmental impact on the biophysical environment and to environmental inputs to planning was also received as part of the more general public comment on the planning proposals (e.g., in relation to the draft Monarto General Planning Proposals, December 1974); in the responses to the planning exhibition at the MDC; through personal contacts by MDC staff members with conservation groups and individuals (e.g., through speaking engagements); from individuals contacting the MDC about specific issues which concerned them; from an informal committee of members of conservations groups initiated by the MDC; as a result of a questionnaire sent to thirty-eight conservation organisations by the MDC; and as a result of the publication of the 'Plan for Environmental Study' and 'Environmental Study Progress Report'.

Despite the distribution of over 400 copies of the Draft EIS Phase I to Federal and State Government Departments, libraries, societies and professional bodies, State and Federal parliamentarians, consulting firms, local councils, the media, universities, schools, colleges and private individuals; and concurrent press advertisements requesting public comment on the Draft, written comment on it was received from only one private individual, three conservation groups, two professional bodies, one college and eleven government departments.

This response contrasts with (and may be in part explained by) the extensive response received through the various channels listed above *before* the Draft Phase I EIA was published. To that stage, one hundred and nine organisations and individuals were recorded by the MDC as having provided written submissions on various aspects of environmental planning for Monarto. Of these twenty-four were from individuals, thirty from conservation groups, eighteen from professional and interest groups other than conservation, eight from academic and research institutions, and twenty-nine from government or semi-government bodies.[7]

The above data provides some support for two points; namely that the public input obtained in response to draft EIA is often of limited value, and that the time to seek public participation is at an earlier stage in the process. Public comment received after the EIA is produced tends to be less effective, because planning is by then usually well advanced and planners become committed to their proposals and are reluctant to change them.

If the sequential approach to environmental reporting discussed earlier were adopted, public input could be obtained at an earlier stage in response to the initial reports. However, other means must also be used. These require the proponent organisation to take the initiative in contacting conservation groups, in encouraging advisory committees on environmental matters, and in providing information openly.

One of the surprising things about the Monarto proposal was that its potential environmental impacts were not subjected to more sustained public criticism. Part of the explanation was the defusing of such criticism by the efforts of the MDC to co-operate with conservation groups. They were also impressed by the existence within the MDC of a group specifically concerned with environmental matters, and by the efforts being made to take environmental factors into account.

Much of the public response, from conservation groups in particular, related to very specific site aspects (e.g., the preservation of particular areas of native vegetation). Within these limited bounds, public input was quite effective in drawing attention to, and obtaining preservation of, areas of conservation or recreation value. But few responses concerned themselves at any length with wider issues of regional environmental impact, or with the impacts of major components of development (e.g., sewage disposal). In general, the conservation groups appeared to lack expertise and resources to examine fully and critically the relationship between engineering and urban planning aspects of the proposal and their environmental consequences. This was probably due to the fragmentation and localised interests of many of the groups.

Butlin noted a somewhat similar problem in relation to the Botany Bay study:

> ... the combined influence of natural science publicists, preoccupied with the physical environment for its own sake, led to concern with minute physical disturbances. The emotive enthusiasm of many local action and interest groups by contrast ended in a situation in which environmental considerations ... in the last resort could be disregarded as the views and opinions of 'cranks'.
>
> Worthy as many of these concerns may be, they provided an opportunity to avoid evaluation of human environmental issues that were much more directly at stake. And they have allowed proponents of projects to avoid thorough, open inquiry into alternative proposals and strategic objectives.[8]

In the interests of balanced decisionmaking, it is important that conservation interests should be represented by a strong, centralised organisations as well as a dispersed pattern of special interest groups These peak organisations should have sufficient funds to be able to prepare informed comment on all issues and proposals with major environmental implications. At present this is not the case. Government should provide increased funding to organisations such as the Australian Conservation Foundation so that they can carry out such functions adequately.

NOTES AND REFERENCES: SECTION 3

1 Richard N.L. Andrews, *Environmental Policy and Administrative Change* (Lexington Books, Mass., 1976), p.36.

2 For a discussion of EIA methodologies, see for instance, R.E. Munn (ed.), Scientific Committee on Problems of the Environment, *Environmental Impact Assessment: Principles and Procedures* (Toronto 1975).

3 N.G. Butlin (ed.), *Sydney's Environmental Amenity 1970-75*, (ANU Press, Canberra 1976), p.52.

4 David Cole, *A Preliminary Investigation into Legislation Relevant to the Physical Environment of the Proposed City of Monarto*. Unpublished report prepared for the Monarto Development Commission (June 1976).

5 e.g., John Paterson, 'The Changing Nature of Planning: from Philosopher King to Municipal Dog Catcher', paper delivered to the Royal Australian Planning Institute 14th Biennial Congress, 1976.

6 Leonie Sandercock, *Public Participation in Planning*, Report prepared for the MDC, November 1975.

7 Monarto EIS Phase I (MDC, January 1976), Appendix 7.

SECTION 4

ENVIRONMENTAL EXPERTISE AND ORGANISATIONS

Given that a large organisation has a commitment to considering environmental factors in its decisionmaking, how should it organise to do so? Relevant problems here are in what form to obtain the required environmental expertise, and how to integrate that expertise with the remainder of the organisation. In obtaining environmental expertise there is a range of possibilities between two extremes, which are, 1) the exclusive use of consultants, 2) the exclusive use of permanent staff. The solution chosen in terms of consultant: staff ratio will depend on many factors, including the nature of the organisation and the project, and the extent of consultancy expertise available. Similarly, within the organisation there is a range of choices lying between that of setting up a separate environmental group, and that of distributing environmental expertise throughout the organisation. This section discusses these and related issues in the light in the light of experience at the MDC and elsewhere.

4.1 Environmental consultants and internal expertise

The MDC was under a directive to confine its staff members to less than seventy during the period under review. Because of this ceiling, coupled with the requirement for rapid progress to be made in planning and developing the new city, extensive use was made of the services of consultants in most aspects of the MDC's operations. Environmental studies were no exception to this. The environmental planning division (EPD) within the MDC, as previously noted, at full strength (which was not reached for some time) had a staff of five working on environmental matters; but a high proportion of their time was spent on co-ordinating and evaluating work done by consultants. For example, by the time the Phase I EIS was published in January 1976, seventy-eight environmental studies were listed as being completed or in progress, the majority of which had been initiated in the preceding eighteen months. Although the EPD was directly in charge of approximately half the latter, it had substantial involvement in management or use of the output of most other studies. In retrospect, the proportion of external consultants to staff was too high throughout the MDC, although in view of the constraints placed on time and staff there was little alternative at the time.

It is common in Australia to make heavy use of consultants to carry out environmental studies and prepare EIS's, with a minimum of involvement by personnel within the proponent organisation itself. For 'one-off' proposals with little need for subsequent environmental involvement this approach is acceptable. But for large, ongoing projects, a high level of use of consultants on environmental matters has its disadvantages. Here organisational interests and the aim of improved environmental planning may clash, because while from the organisation's point of view there may be considerable advantages in using external environmental expertise on a short-term basis, this strategy is likely to work against a longer-term improvement in the environmental dimensions of the organisation's planning and decisionmaking.

Perhaps the greatest problem with the use of environmental consultants arises from the generally shorter-term nature of their involvement. They carry out certain work according to their brief, compile a report, and move on to a consultancy elsewhere. In doing so, the expertise which they have developed concerning the project is lost also, except insofar as it has been passed on to the permanent staff of the organisation or is incorporated in their report. Where numbers of external consultants are used, a great deal of time can be spent familiarising consultants with the project and arranging details of the consultancy. Environmental consultancies are particularly prone to such problems because of the fragmentation of environmental knowledge amongst a large number of specialists, all of whom have to be informed, co-ordinated, and overseen to ensure that they are carrying out the work required. Furthermore, to avoid the loss of much of the value of consultants' work to the organisation, it is necessary to have internal staff with sufficient time, and the appropriate professional backgrounds, to work reasonably closely with consultants and ensure that the results of their work are properly understood and integrated into the planning of the project. This is particularly important in the environmental field where, with its developing methodologies and often inadequate data, it is essential for those in the organisation to understand the basis from which the consultants' conclusions are reached as well as the conclusions themselves. Judging from the Monarto experience, as a rough generalisation the numbers of staff with environmental expertise should be such that they are spending at least half their time directly involved in environmental studies and planning, rather than co-ordinating and reviewing the work of consultants. Consultants should be used only where their type of expertise is so specialised that an internal staff member with that expertise could not be fully utilised on a permanent or medium-term basis.

For reasons of this kind, it seems essential for organisations to have considerable internal expertise in environmental matters if such matters are to be adequately considered on a longer-term basis. However, in many mission-oriented agencies adequate levels of environmental expertise and environmental consciousness do not exist. The propensity of such agencies to pursue narrowly conceived objectives and restrict performance criteria to technical and economic factors, often to the detriment of wider social and environmental considerations, has been widely noted and documented. For example, in relation to the Hydro-Electric Commission's report to the Tasmanian Parliament on the Lake Pedder proposal, Davis writes:

> First we should note that only one proposal was submitted and that no competing alternatives were spelt out in any detail. There was discussion of thermal and nuclear alternatives, but many of the major assumptions on which these proposals were costed and rejected were not comprehensively explained. There was no specific mention of the necessity to flood a National Park or the possible costs involved in structures to prevent this occurrence. Overall the report, like most other energy project appraisals, was primarily technically orientated; with little detail on economic costing and even less comment on social and environmental factors.

Butlin notes in relation to pollution control areas in Sydney:

> What is important is to observe that all are being approached, in essence, as separate technological problems with physically-defined objectives. This derives from the basic background of the existing personnel and the control experience of the past decade. It is an inadequate background and experience.[2]

In view of this situation, it is disturbing to see the current trend in the Commonwealth public service to reduce the numbers of specialist advisers in favour of those with generalist and particularly, economic, backgrounds.[3]

There are some other arrangements which can be utilised as alternatives or supplements to the consultant/internal staff choice. One alternative is the managing consultant arrangement, where rather than the staff of the organisation co-ordinating consultants, this work is done by the prime consultant. Again, the problems with this arrangement arise because it distances internal staff even further from the sub-consultants. Managing consultants are only satisfactory if the consultant-managed work is reasonably self-contained and does not require a great deal of supervision or subsequent implementation by the client organisation.

Another often useful means of obtaining a particular kind of expertise on a medium-term basis is through secondment from another government agency or private consultant. Rather than carrying out a particular brief, the consultant is then a temporary member of staff and can be used for a variety of tasks in a more flexible way. Many consultancy firms are reluctant to make such an arrangement, however, as it would detract from their own ability to reallocate staff amongst briefs as necessary.

These comments may be summed up by saying that the complexity, novelty and incomplete knowledge attaching to many environmental matters, and the consequent difficulty of integrating environmental considerations into the planning process, point to the need for the development of a body of continuing environmental knowledge and expertise internal to organisations. Yet the extensive use of consultants in this area has been a more common solution. This may in part reflect the difficulty of obtaining environmentally qualified staff. But it also reflects the view that the satisfying of environmental requirements is largely a procedural and short-term matter. And that view is in turn fostered by the character of EIS requirements themselves, which as discussed elsewhere in this submission, fail to emphasise the need to arrange for *continuous* consideration of environmental matters.

4.2 Types of consultants

Three types of consultants are commonly used: professional private consultants or firms, academic consultants, and other government agencies. Another possibility is local conservation groups, which may contain people with professional or semi-professional expertise as well as local knowledge.

Academic consultants tended to have three main problems. They were often quite unreliable in respect of carrying out the required work in anything like the agreed time period. In fact the absence of any sense of time constraints was at times quite astonishing. The pressure of other work was, of course, the usual reason given. But if academics are to seek and be paid good rates for consulting work, under normal circumstances they must be prepared to meet their clients' time constraints.

The second main problem of academic consultants was a tendency to ignore the requirements of the client in order to pursue particular research interests or their own interpretation of the problem. A certain amount of reinterpretation of the brief and the problem by the consultant is often necessary, but reasonable bounds tended to be exceeded. This tendency was allied to the third, and perhaps most important problem, that of failing to try to understand the relationship of their work to the planning requirements of the client. Often, a commercial or government agency client may lack sufficient knowledge of the consultant's area of expertise to be able to tell the consultant exactly what is required. In such cases the consultant cannot be expected to be handed a nearly parcelled brief, but must be prepared to spend time learning about the project in order to define, in co-operation with the client, the best way of providing assistance. In a way analagous to the EIA process itself, the most useful inputs can often come from a consultant's close working relationship with the client during the performance of the consultancy, rather than from the consultant's final report.

Having put forward these generalisations about the possible problems of using academic consultants, it should certainly be added that many such consultants suffer from none of the faults listed; and that such problems are probably to a large extent due to the relative newness of the environmental consultancy field and the consequent lack of inter-disciplinary expertise and established methodology and experience. Academic consultants also have the advantage of generally charging lower rates than consulting firms, and the content of their work is usually of a high standard.

Professional consultants (firms and individuals) exhibited a rather different set of advantages and disadvantages. Some of these are obvious, for example, high costs (a charge of 2.5 times the consultant's basic salary rate is common), and a tendency to expand the brief and recommend more work at the end of it. In relation to environmental work particularly, however, some more specific points should be noted. During the environmental boom of the early 1970's many established consulting firms began to take on environmental work and formed environmental consultancy groups; and a range of new environmental consulting firms arose. Many of these firms and groups have now fallen by the wayside. But many general engineering and planning firms remain who are willing to tender for environmental work as it arises. Because of the difficulty of keeping a number of environmental specialists fully employed, however, there is a tendency for the consulting firm to carry out environmental studies with staff whose main qualifications and experience lie in other areas. It is therefore important for the client to ensure that the hours to be spent on the study by environmentally qualified staff are clearly specified in the consultant's brief, and that these are carried out.

There were, of course, consulting firms with a high level of environmental expertise. These were often small or medium-sized firms who specialised in particular types of work. Full-time professional consultants were also, as one would expect, usually better at relating their work to the overall planning process and needs of the client than were many academic consultants.

Other government agencies were used by the MDC as consultants in a number of areas of planning with environmental implications, (e.g., the Highways Department was involved in arterial road design, site drainage plan). The MDC was required by government to use other government agencies in this role wherever possible. Some Departments were commissioned to execute the whole of a project which would normally be within their statutory responsibility (e.g., the Engineering and Water Supply Department designed sewage and water supply facilities).

From an environmental point of view, such arrangements were not always advantageous, since the level of environmental concern and expertise in these agencies was not generally high. In this, as was noted in the preceding Section, South Australian agencies are not unique.

Finally, a brief comment should be made about the use of conservation groups for environmental studies. Depending on their level of expertise, such groups can do useful work in providing basic information from their local knowledge about native vegetation, wild-life, rare species, etc. Frequently this information is provided free of charge; but it seems more appropriate for the recipient of the information to make some payment for it.

The preceding comments provide some further support for the desirability of maintaining a high ratio of environmentally qualified staff to external consultants. There remains the questions of the disposition of such staff within the organisation.

4.3 Environmental planning and internal organisation

As described in the Appendix, the MDC was organised into eight divisions mainly on disciplinary lines (Town Planning, Engineering, Social Planning, Architecture, Environmental Planning); although some divisions reflected specific tasks (Public Relations, Industrial and Commercial Development). The divisional structure, as events turned out, created difficulties in management and co-ordination generally, and hampered the effort to have environmental factors more fully considered in the planning process. By grouping staff with similar training and experience, the divisional structure had the effect of creating allegiances within divisions and reducing communication between different disciplines. The arrangement also led to a competitive situation between the leaders of divisions for control and influence. The environmental planning division (EPD) was particularly adversely affected by these developments. Its responsibilities for EIA and the environmental content of planning overlapped with the responsibilities of other divisions more than most. Furthermore, it faced the inevitable reaction that environmental considerations have always been part of the responsibilities of town planners, engineers and architects, and should continue to be dealt with by them.

The existence of separate social and environmental planning divisions created a problem with respect to preparation of the EIS, since the social planning division preferred to produce its own documentation, with only a summary of it included in the EIS. More substantial problems, however, arose in such matters as commissioning consultants, since the control of a consultant by one division often meant that the requirements of other divisions in relation to the consultant's work were less than satisfactorily met. Such difficulties were exacerbated by the wide span of control of the general manager across eight divisions (and later an urban economist as well) which effectively prevented him from playing a detailed co-ordinating role.

Again, the preceding comments give the worst side of the picture, because a great deal of co-operation and a high work output was achieved under these arrangements. Furthermore, the MDC recognised the difficulties, and a major reorganisation was planned, which was delayed due to uncertainty as to the future of the project prior to its eventual postponement. A number of other steps were taken, however. These included establishing a committee charged with reviewing proposed consultancies to ensure that the requirements of all divisions had been considered. More fundamental was the creation of project teams drawing upon expertise from various divisions as appropriate in order to carry out a defined task. These teams had begun to work well before postponement of the project.

It is easy to be criticial of the divisional structure of the MDC in retrospect, but this was, and is, a common administrative form. The more general lesson from the experience of the MDC and other organisations is the need to move from segmental and rigid organisational structures towards more flexible arrangements. Such arrangements would require organisations to be structured on task-oriented, rather than disciplinary lines. Structures would be based on groups formed to deal with particular project or policy areas, drawing on a range of appropriate disciplines. The life of such groups would be that of the project concerned. Thus organisational structures would not be permanent, but would vary as tasks were completed and new tasks undertaken. Membership of project teams would overlap, with some individuals providing input to a number of projects. Staff members would have a dual responsibility - to the leader of their project team for their work on the project; and to a more senior staff member in their particular area of expertise for the professional standard of their work.

There are examples of various degrees of change in such directions. But further change, together with internalisation of environmental expertise, is necessary to achieve the interdisciplinary co-operation required to produce plans and decisions based on balanced consideration of environmental, social and economic factors.

NOTES AND REFERENCES: SECTION 4

1 B.W. Davis, 'Waterpower and Wilderness: Political and Administrative Aspects of the Lake Pedder Controversy' *Public Administration* Vol.31 (Sydney, 1972), p.33.

2 N.G. Butlin (ed.), *Sydney's Environmental Amenity 1970-1975* (Canberra 1976), p.92.

3 B. Juddery, 'New Cuts Being Made Mainly by Further Hacking Away at Specialist Expertise', *Canberra Times*, 6 October 1978.

APPENDIX

BACKGROUND INFORMATION ON THE MONARTO PROPOSAL

The purpose of this Appendix is to provide some background to the various examples taken from the Monarto experience which have been used in preceding sections.

1.1 Brief History

Following some generalised discussion over several years as to the desirability of establishing new growth centres in South Australia.[1] more specific investigations were carried out during 1971 and 1972,[2] and the site for the proposed centre was proclaimed in December 1972, just to the west of Murray Bridge and approximately 70 km east of Adelaide, on the main road and rail routes between Adelaide and Melbourne. The Act to establish the MDC was proclaimed in January 1974 and the major part of the 15,200 hectare site acquired by June 1974.

Planning for the new city for an ultimate population of approximately 180,000 continued until mid-1976, when the State government decided for a number of reasons to postpone the commencement of development for an indefinite period. During the period before postponement, planning for Monarto had in many respects reached a quite advanced stage but had been hindered by a lack of solid commitment to an agreed rate of development and a specific financial program, both by the Commonwealth and in later stages by the South Australian government. This uncertainty led to the need for the MDC to repeatedly replan and rebudget for progressively lower projected rates of growth and later target dates for commencement of physical development.

Reasons for postponement of the Monarto project included a decreasing rate of growth of Adelaide's population, and hence a less urgent need to provide an alternative growth centre; and the advent of less prosperous economic conditions throughout Australia. Some other contributing factors were the change of Federal Government in late 1975 (although the extent of financial support which the Federal Labor Government was prepared to commit to the Monarto project was never finalised, and by 1975 Federal Labor Government support for the project appeared to have declined); active opposition to the project by many of the staff of the State public service departments scheduled to move to

Monarto; lack of support for the project by a considerable proportion of the public and by the State opposition parties; and doubts raised about a range of matters including the suitability of the selected site and the ability to create an adequate employment base to attract industrial development.

1.2 Monarto - Environmental problems and constraints

The environment of the Monarto site and region and the likely impacts of the proposed development have been examined in the Monarto EIS Phase I and II and in various supporting documents. It is worth listing some of the environmental constraints and problems here, however, in order to demonstrate that the MDC faced some important environmental difficulties as well as the perhaps more obvious engineering, urban planning and financial problems of developing a town with an eventual propulation of around 180,000. Some of the environmental problems were:

- Low rainfall (12-15") occurring mainly in winter; and consequent problems with dust, high potential use of reticulated water for gardens.
- Temperature variations - site hotter in summer and colder in winter than Adelaide.
- generally light, sandy soils - problems of wind and water erosion due to increased runoff from developed areas and during construction.
- Areas of saline soils including pockets of high salinity.
- Rock close to surface in many areas increasing excavation costs.
- Most of original native vegetation (mallee-native pine) cleared for farming. Much of remaining vegetation old, with little capacity for regeneration. Many areas therefore aesthetically unattractive.
- Dependent on Murray River for water supplies. Poor quality and possible future constraints on quantity.
- Possible problems from runoff of polluted water from Monarto site to Murray.
- Potential difficulties in sewage disposal due to inland site.
- Potential air pollution problem under some conditions due to bowl-like shape of site.

- Increased pressure on recreation areas along the Murray from Monarto population.
- Increased pressure on Adelaide Hills for recreation and development particularly along the Adelaide-Monarto corridor.

In addition to these difficulties, the plans for Monarto included a number of features which, although beneficial for other reasons, introduced environmental problems of their own. For example:

- The amenity lake, planned for a central site near the proposed city centre, would be likely to suffer from problems of turbidity, salinity and algal growth, and might need a considerable throughput of water in excess of rainfall to reduce these problems.
- The first industrial area, situated in the southern part of the site for proximity to road and rail routes, would need strict emission controls because prevailing winds from the southwest would carry emissions across the town site.

These points serve to illustrate the importance of the physical environment to the planning of the new city.

1.3 Environmental impact assessment requirements

Not only were environmental matters likely to be influential in the planning process, but both Commonwealth and South Australian governments required the MDC to submit an EIS setting out the projected effects of the proposed development on the environment.

The South Australian government had no legislation setting out requirements for EIS's nor had it any formal procedures detailing the steps to be taken by those preparing an EIS, or when an EIS is required, or what the content of an EIS should be. A recommendation of Environment Protection Council[3] was usually referred to for guidance in such matters. It was said by representatives of the South Australian Department of Environment and Conservation (SADEC) that a Cabinet directive had been issued requiring all State government agencies to produce EIS's for projects with significant environmental impacts; although no copies of any written directive were available. (In fact the only EIS-type document that had been produced in South Australia at the time the MDC was formed, was a preliminary report by the Redcliffs petrochemical consortium, which was produced mainly in response to the requirements of Commonwealth legislation.) Thus the formal backing for SADEC to influence the actions of other State government agencies was not very substantial.

The MDC, however, was also subject to the requirements of the then recently introduced Commonwealth Environment Protection (Impact of Proposals) Act 1974. This arose because the Monarto project was receiving financial assistance from the Commonwealth, and under sub-section 5(2) the Act extends to 'matters ... arising in relation to financial assistance granted, or proposed to be granted, to the States.' The Commonwealth Department of Environment (now amalgamated into Environment, Housing and Community Development) made it clear to the MDC that an EIS would be required under the provisions of the Commonwealth Act.

The MDC thus had a dual motivation for introducing a substantial environmental component into its planning: to meet some of the environmental difficulties imposed by the site; and to carry out studies and prepare documentation to meet State and Commonwealth EIS requirements. It was with such factors in mind that the Environmental Planning Division within the MDC was established.

1.4 The MDC's administrative arrangements for environmental planning

The structure of the MDC for most of the period under review consisted of eight Divisions: Engineering, Town Planning, Social Planning, Architecture, Finance and Administration, Industry and Commerce, Public Relations, and Environmental Planning. These Divisions reported to the General Manager who in turn reported to the Commission (two Commissioners and a Chairman). The positions of Chairman and General Manager were later amalgamated.

The Environmental Planning Division (EPD) had three main areas of responsibility:

- To co-ordinate and carry out environmental studies required by the MDC.
- To provide the environmental inputs required in the course of planning Monarto.
- To prepare necessary environmental reports and documentation, including the EIS.

At its full strength, the staff of the Division consisted of its Director, two Senior Environmental Officers, and two Environmental Officers. In addition to work carried out by internal staff, extensive use was made of external consultants to carry out environmental studies.

Not all environmental studies were administered or carried out by the EPD. Some studies which could be described as 'environmental', or which had a considerable environmental component, were carried out by other Divisions (e.g., hydrology studies by the Engineering Division, environmental studies related to planning of residential areas, by the Town Planning Division). EPD usually had some input into such studies.

1.5 Relative timing of Monarto planning and EIS

Some key dates for the planning of Monarto and the conduct of environmental studies are set out in Table I. It can be seen from the Table that the MDC Act was proclaimed in January 1974, and the Commission began to build up staff numbers throughout 1974. By that time the MDC site had been designated and much of it purchased, and considerable planning had been done by the team of consultants appointed by the Monarto Steering Committee prior to formation of the MDC.

Work by the MDC towards producing an EIS did not commence until October 1974, when the MDC environmental planning division was first formed. Thus the EIS for Monarto could not meaningfully include studies of alternative sites to Monarto for the new urban development. Nor could it meaningfully consider broad alternative urban configurations within the chosen site, since these matters were already largely settled, as set out in the Draft Monarto Planning Studies published in December 1974. The Draft Phase I EIS was published in January 1976, by which time planning studies were far advanced.

It will be clear from the foregoing that no formal environmental impact documentation was produced for the choice of site for the new city, or for many of the early planning decisions within that site. In terms of the Commonwealth EIS legislation this was acceptable, since that legislation was not passed until after these early decisions were made. In terms of the pre-existing, although not formalised, State requirements, however, it is apparent that if there was any pressure to produce an EIS during site selection and early planning this was disregarded until after the MDC itself began operations.

The most important consequence of the time-lag of environmental studies behing general planning for Monarto was the difficulty of providing adequate environmental inputs to the planning process, particularly in the early stages. This situation placed those staff

TABLE II

TIMING OF MONARTO PLANNING AND EIS

Publication by State Planning Authority of 'Adelaide 2000 - the Alternatives', setting out the possibilities for dealing with Adelaide's growth, including that of new town development		1969
Appointment by State Cabinet of a Committee chaired by the Minister for Conservation to recommend possible sites for new city	September	1971
Report prepared by the State Planning Authority recommending a suitable site within 30 km of Murray Bridge	October	1972
Proclamation of 15,200 hectare site to provide for a population of 200,000 persons	December	1972
Steering Committee appoints consultants to begin planning studies		1973
Proclamation of the Monarto Development Commission	January	1974
Major proportion of site acquisition completed	June	1974
Commencement of program of environmental studies by MDC towards EIA	October	1974 *
Australian Government Environment Protection (Impact of Proposals) Act assented to	December	1974
Draft Monarto Planning Studies published	December	1974
Draft Monarto EIS Phase I published	January	1976

* Some studies had been initiated before that date

members dealing with environmental matters in the difficult position of having in some cases to attempt to change planning decisions already made. It should be added, however, that the EIA requirement, together with concern, in the aftermath of the Redcliffs inquiry, that Monarto might be delayed on environmental grounds, certainly had a major effect in improving the extent to which environmental factors were considered in planning.

It must be pointed out also that, in retrospect, the process of site selection did lack an adequate environmental input. The decision of the committee which nominated a site within 30 km of Murray Bridge was made on the most general grounds and it was not supported by any detailed review of the environmental (or for that matter social and economic) advantages and disadvantages of the alternative sites. The speed and relative secrecy with which the decision was reached was said to be justified by the need to avoid land speculation at possible sites. Similarly, the choice of a specific site within 30 km of Murray Bridge was based on only a few weeks of fieldwork. Consequently, the environmental constraints of the site could not have been fully appreciated when decisions were made. The point is not that the environmental problems could not be overcome - the MDC devised means of ameliorating them - but if they had been fully taken into account, then on balance together with economic and social factors, a site elsewhere in the State may have been shown to be preferable.