Towards a Sound Environmental Knowledge Base for Western Australia: the Push Me-Pull You Approach Revisited

Angas Hopkins
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Summary
This paper is a response to the recent EPA Position Statement No 3 *General Requirements for Terrestrial Biological Surveys for Environmental Impact Assessment in Western Australia* (May 2000). The paper outlines a personal view on the present Environmental Impact Assessment process and suggests some remedial action. While I believe there is merit in setting standards for survey as a means of improving the quality of environmental data gathered by proponents through EIA process, I suggest that there are bigger issues to be addressed. The proposals in the Position Statement will not axiomatically lead to an improvement in the quality of data provided by proponents. An alternative approach is to develop quality control through mechanisms such as data audits. Second, I raise the issue that the data being gathered for the EIA process seldom contribute to an improvement in our collective knowledge-base, and thus to enhanced decision-making and management in the longer term. I suggest that quality-assured environmental data from the EIA process, together with data from monitoring impacts as developments proceed, should contribute towards the development of a State-wide environmental database which is available for future planning and decision-making, and on-going management.

Historical Background

I would like to set the scene for my proposal by relating two observations drawn from the history of Environmental Impact Assessment and environmental data etc.

In 1976, the then-Director of the Department of Conservation and Environment, Dr Brien O'Brien, published a paper entitled "Environmental Impact Statements and a Push Me-Pull You Approach" (O'Brien 1976). Although his main argument was in defence of the Government of the day's position of not formalising the EIA process, the author alluded to the concept of using the opportunity of environmental studies prior to development as a means of improving our collective knowledge-base on the environment of this vast, sparsely-populated State. O'Brien also suggested that monitoring the impacts of the developments on the environment should provide additional data. Interestingly, O'Brien proposed the use of a routine overhead charge on companies of 1-5% of development costs to fund the environmental studies (as distinct from having the work commissioned and supervised by the proponents).

In about 1990, the US Environmental Protection Agency undertook a review of aspects of the Environmental Protection Act and its implementation. The EPA noted that an estimated US$ 70 billion dollars was being spent annually throughout the nation on environmental regulatory programs (mainly various forms of compliance monitoring). Yet, despite this level of expenditure and the massive volume of data collected, it was not possible to say whether or not the regulatory programs were effective in ensuring maintenance of the overall quality of the environment (US EPA 1990). This led to the resolution to establish the US Environmental Monitoring and Assessment Program (EMAP) to do the job better.

The environmental setting

Western Australia is almost one third of Australia's land mass and encompasses a diversity of environments from tropical rainforest patches through desert grasslands to temperate/mediterranean-climate forests and species-rich shrublands, as well as coasts and islands, estuaries and inland water bodies. The biota is rich but incompletely documented. For example,

Western Australia contains about 12,000 species of vascular plants (of which about 7,500 are described), which is nearly half of the estimated total for Australia and includes 45% of the nation's rare and threatened flora. The State has a more proportionally rich vertebrate fauna than most parts of Australia comprising over 2,700 species (including fish). The invertebrate fauna is thought to include tens of thousands of species, many of which are undescribed — for example, 50% of the scorpion species collected during the recent biological survey of the southern Carnarvon Basin were new to science (Smith and McKenzie 2001). Western Australia also contains 26 of the 80 Biogeographic Regions defined for Australia, some of those having the highest numbers of endangered and vulnerable species in Australia, and with high levels of extinctions recorded. For example, the recently survey of the southern Carnarvon Basin found that 48% of mammal species thought to have occurred originally in the region are now regionally extinct (McKenzie *et al*. 2001).

The biological richness and complexity of the Western Australian biota reflects, to a very large degree, the complexities of the geophysical environments found here. Australia as a whole has not experienced the repeated glaciations that have occurred over northern hemisphere land masses that have homogenised the surfaces of those land masses - rather it is an ancient landscape that has experienced gradual physical and biological evoutionary processes. In Western Australia, the land surfaces and sub-surface deposits contain subtle but complex evidence of these evolutionary process eg the hypersaline waters in old fault lines that may appear as springs with the slightest disturbance of the hydrological balance. Our knowledge of these geophysical features is very limited, and our capacity to manage the environments that they are a part of is also limited. Added to this are the complexities of the biota that have evolved in these complex habitats.

Management of these Western Australian environments and their biota poses a huge challenge. There is clearly an imperative to do it better.

The starting point for the proposal

I propose eight points as the basis for my proposal:

- the biota of Western Australia is known to be special (as suggested above);
- the biota is inadequately documented. The present knowledge-base is (with few exceptions) a completely inadequate basis for making decisions, especially those decisions that have any potential whatsoever to cause environmental harm and/or loss of the indigenous biota;
- the biota of the State is known to be substantially depleted as a consequence of various developments since colonisation eg. intensive agriculture, pastoralism, urban expansion, certain mining operations;
- the Government has policy and legal obligations eg. through International Conventions and national policy statements, and a very strong moral obligation, to prevent any further losses in the biota;
- Western Australia is a vast State with a very low population base and, therefore, a potentially reduced capacity to gather data on the environment;
- likewise, Government does not have a substantial capacity to actively manage the environment to ensure that there are no further losses in the biota;
- there will be continuing requirements for Government to make decisions on new, additional development proposals, and to permit expansion of existing projects; and
- the present statutory framework for environmental impact assessment (Part IV of the Environment Protection Act 1986) will continue to be used into the foreseeable future.

The proposal

I propose major reform to the EIA process in the following ways:

1. The requirement for the proponent to provide the basic information on which any assessment is to be made should continue. The question of whether there should be a substantial distance between proponents and environmental consultants compiling the data should be considered.

2. There should be one or a mix of quality control mechanisms built into the EIA process so that Government (officers in the Department of Environmental Protection, the Environmental Protection Authority) can have confidence in the information they are provided by the proponent for use in the assessments. Five mechanisms are suggested (this is not an exhaustive list):

- expert knowledge should be drawn on to define the scope of environmental studies necessary for each particular project;
- there should be an independent audit of a (random) selection field sites by an EPA-appointed scientist (preferably a person with expert knowledge of the biota of the region) to allow for a direct comparison of data (with the implied action of rejecting the proponent's report if it is not up to standard);
- EPA/DEP should arrange for peer review of draft consultant's report(s) by one or a number of relevant scientists from a panel prior to formal evaluation of the report(s) by EPA/DEP;
- EPA/DEP should seek comment on specific aspects of the draft consultant's report(s) from people with expert knowledge (from regional panels); and
- there should be a formal requirement to lodge voucher specimens (for plants, invertebrates) and/or to have WA Museum certification (for vertebrate animals).

The suggested mechanisms highlight the need for Government to have access to individuals with good knowledge of the biota of each region of the State. It might be necessary for EPA/DEP to formalise a relationship with those experts by establishing a panel or regional panels.

3. The data collected by the proponents should become public data (in return for access to the commons). The quality assured data should be entered into a State/corporate database which would be accessible to members of the public and available for future proponents to use to contexturalise their proposals.

4. In addition to undertaking studies of the environment prior to a proposal being approved, proponents should be required to institute relevant monitoring programs to document the impact(s) of their proposal on the environment (to provide the basis for corrective action). (The monitoring programs could test the hypothesis that there is no deleterious impact on the environment as a consequence of the particular project). The data generated by such monitoring should also be in the public domain. The data should be entered into the State/corporate database to facilitate improved decision-making and environmental management.

The benefits of the proposal

The following benefits can be identified:

- The State will, over time, develop a greatly improved understanding of the types of organisms to be found in Western Australia, the habitats where they might be found, the relationships between these, and the responses of the organisms to various kinds of disturbance;
- the expanded and improved knowledge-base will inevitably lead to improved decision-making and environmental management;
- individual proponents will benefit from having access to the comprehensive database (an up-to-date baseline);
- the work of the officers in the DEP, and of the EPA, will be made substantially easier by the independent pre-checks on EIA documents;

- the overall enhancement of the EIA process proposed here will provide a greater level of certainty for proponents;
- State of Environment reporting and other types of environmental auditing will become more meaningful; and
- there will be substantial efficiencies and cost-savings in the medium to long-term.

I have suggested a number of reforms to the present EIA process that should, if implemented, lead to a substantially improved capacity to manage the environments of Western Australia, including the biota. The proposed reforms are designed to implement the concept of the push me – pull you approach to environmental impact assessment, or to move towards an Adaptive Environmental Assessment and Monitoring (AEAM) model, whereby the community gains valuable information through the EIA process and subsequent monitoring.

There is one additional area that could provide valuable information. Environmental Impact Assessment has now been happening in Western Australia for over 25 years. An analysis of the some or all of the EIA reports and outcomes over that 25 year period could reveal important strengths and weaknesses in the present system. But, more importantly in the present context, such an analysis could highlight key factors in the Western Australian environment that could be investigated for their suitability as environmental indicators.

References

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