ENVIRONMENTAL ASSESSMENT PROCEDURES AND ISSUES IN THE PACIFIC BASIN-SOUTHEAST ASIA REGION

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Introduction

International concern about the environmental effects of development has grown rapidly over the last three decades. At first, environmental problems were perceived mainly as problems for wealthy countries. Now they have become recognized as problems for poor and rich countries alike, and consideration of the environmental effects of development has become a central rather than a peripheral issue in the planning and assessment of development programmes. Environmental problems relate to questions of ecologically sustainable development including resource use, the maintenance of productive ecosystems and biodiversity, and human physical and social health. Environment is defined in its broadest sense to incorporate both the natural and the cultural dimensions.

Most developing countries in the Asia and Pacific regions are very much aware of the costs of environmental degradation and the effects of development planning and, in some, there are now many years of experience in attempting to assess, mitigate, and monitor adverse environmental impacts of development projects and programmes. However, in other countries, formative steps are only now being taken towards such assessments.

This paper focuses on the procedures and the effectiveness of environmental impact assessment (EIA) of 17 countries as they were reported at a training workshop on environmental assessment for development planning at Griffith University in Brisbane, Australia, in July 1988. All but three of the 37 participants at the workshop came from the Pacific Basin and Southeast Asian countries (as shown in Table 1) and included government officials, academics, and representatives from industry. All were either practitioners or intending practitioners in EIA but with a variety of backgrounds in planning, engineering, conservation, pollution control, or natural resource management. The purpose of the workshop was to assist in manpower development in the region and to advance the practice of environmental assessment in development planning.

The Status of Environmental Assessment Procedures

For the workshop, each participant prepared a report on environmental assessment and planning procedures as they operated in their own countries. The full reports have been collated without editing but, for the purpose of this paper, the original reports presented by participants have been briefly summarized in Table 1. The table shows the bare outlines of procedures as they existed in the various countries: whether or not environmental assessment was well developed, whether or not specific EIA legislation existed, and the administrative unit that was responsible for assessments. All responsibility for any misrepresentation arising from this condensation rests with the current authors.

The table shows a great range of experience with environmental assessment among the countries represented by the participants. Six countries had specific EIA legislation in force, some with almost a decade of explicit structural procedures for performing EIA. Several others had some form of administrative procedure or policy in place with respect to EIA, but without legislation. The remaining countries did not employ formalized procedures and responsibility for environmental assessment procedures was diffuse or EIA was conducted on an ad hoc basis.

In those countries where formalized procedures have been adopted, projects would generally be referred into the EIA procedure by an official, or "caught" by a screening device intended to identify projects with a potential for significant environmental impact. The assessment path is generally one of multiple stages at which a project may be approved or passed on for further information or evaluation. Variations in procedures include negotiation with the proponent and
different degrees of public involvement. The model is generally one of impact assessment by an environmental agency distinct from the key agency, or sectoral agency, responsible for the project and the environmental assessment procedures do not always have a clear connection to the larger planning and decision-making process of which the environmental assessment forms only one part. It is perhaps not surprising, given this model, that some participants were later to identify that forming relationships between the environmental agency and the sectoral development agencies was a priority issue in making EIA work more effectively.

Although the majority of countries still do not have formal EIA procedures, it is shown by Table 1 that most countries desire to tackle environmental issues and have established some form of environmental department or environmental unit. However, irrespective of whether EIA legislation or formal assessment procedures were in place or not, participants from all countries reported lack of skilled and experienced manpower, lack of suitable data and standards, inadequate political resolve, and poor communication across sectors as constraints to effective environmental assessment and impact mitigation. Although formal EIA procedures appear as a useful precondition for effective assessment, the reports indicate that their existence alone is not sufficient.

Having EIA legislation or administrative arrangements is one thing; their effectiveness is another. The practice of EIA in Third World countries has not been without difficulty and not without considerable concern for the effectiveness of current assessment models and procedures. The constraints of limited resources and limited environmental mandates, as well as the inappropriateness of Western impact assessment models and opposition from developers (or project proponents) has meant that the contribution to environmental protection has been moderate (see Sudara 1984, Horberry 1985, Lim 1985; Wandesforde-Smith et al. 1985). Other commentators have not been so kind. For example, Roque (1985: 259) commented:

The big question . . . is whether the expected benefits of the exercise in implementing assessment are being realized. The answer to this question is, unfortunately, negative. Only a few successes have occurred in those rare and fortuitous cases where the environmental issues are obviously critical and whether the EIA has been undertaken at the earliest stages of planning.

The workshop addressed the issue of "effectiveness" in depth, and it did this by calling on the collective experience of the participants. Participants brought to the workshop detailed knowledge of the practice of environmental assessments where these existed in their own countries. They also brought with them first-hand experience of their countries' planning processes and the professional and political climate in which decisions are made. Most importantly, they had considerable knowledge of the responsiveness of the system, or its nonresponsiveness, to incorporating environmental concerns in the existing planning processes.

The workshop process was, at the outset, for all participants to respond in writing to the statement: "Priority issues that need to be addressed to make environmental assessment work more effectively in my country are..." An initial summary of these issues, most commonly about six from each of the participants, was prepared by the authors who arranged and condensed these issues under appropriate headings. This was circulated among the participants for written comments, additions, and indication of priorities. A second synthesis based on these comments was prepared for the final forum discussion at the workshop and discussion there has been incorporated into a workshop booklet (Brown and McDonald 1989). Every attempt was made to faithfully report the contributions from all participants, though the authors are well aware of the dangers and the various sources of bias in this process. Only issues raised by a
<table>
<thead>
<tr>
<th>Category of Impact</th>
<th>Region</th>
<th>Land Use</th>
<th>Project Areas</th>
<th>Specific Projects/Notes</th>
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<tbody>
<tr>
<td>AFL</td>
<td>NEPA 1969</td>
<td>Legislation</td>
<td>Pesticide</td>
<td>23 categories of impact</td>
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</tbody>
</table>

TABLE I. Environmental Assessment in Participating Countries by Region
<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
<th>Impact Areas</th>
<th>Legislative Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solomon Islands</td>
<td>An <em>ad hoc</em> approach that is not effective for integrated environmental management.</td>
<td>Weak provisions in nonspecific EIA acts, e.g., Mines and Minerals Act. Environmental Assessment Bill is in draft form.</td>
<td>The Environment division is in Ministry of Natural Resources, however it has mainly an advisory role with some licensing. Other agencies are largely autonomous, some heed environmental considerations.</td>
</tr>
<tr>
<td>Tonga</td>
<td>EIA is weakly administered by 1985 policy provisions.</td>
<td>No specific EIA legislation.</td>
<td>A checklist called Initial Study of Environmental Effects flags projects requiring EIA. Division of Lands &amp; Environmental Planning is in Ministry of Lands, Survey &amp; Natural Resources and prepares EIA as part of the planning review process.</td>
</tr>
<tr>
<td>Vanuatu</td>
<td><em>Ad hoc</em> to nonexistent.</td>
<td>None though some environmental protection in various Acts. Council of Ministers 1986 Directive is that EIA should be prepared.</td>
<td>Environment Unit in Ministry of Lands is responsible for environmental matters.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mineral development, mining, energy, fisheries forestry, hydropower, food processing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Main emphasis has been on mineral development and mining. Others include the Ranadi fuel storage, the Komarindi hydropower station, the Tulagi tuna cannery, and the Noro cannery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Some projects still avoid EIA. It is difficult to enforce requirements without legislation.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Soil erosion, pollution, coastal zone, fisheries</td>
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<td></td>
<td></td>
<td></td>
<td>EIAs have been prepared on two hotel developments</td>
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<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
<th>Legislation</th>
<th>Administration</th>
<th>Priority areas</th>
<th>Specific projects/notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>EIA guidelines are on a sector by sector basis.</td>
<td>None, though some environmental protection in various Acts.</td>
<td>The Ministry of Forestry and Environment is headed by a cabinet minister.</td>
<td></td>
<td>Silent Valley multipurpose hydroelectric power project shelved as a result of an EIA</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Requirements for EIA are well developed.</td>
<td>Extensive environmental legislation. EIA legislation enacted in 1986.</td>
<td>State Ministry of Population &amp; Environment is the central agency of coordination and EIA review. There is provincial and sectoral EIA also.</td>
<td>Pollution control, land degradation, forestry, renewable resources</td>
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<tr>
<td>Malaysia</td>
<td>EIA procedures well defined.</td>
<td>Env. Quality Act (amendment) 1985; Environmental Quality (Prescribed Activity) (E.I.A) Order 1987.</td>
<td>Minister can prescribe activities requiring EIA. Proponent prepares the EIA which is then reviewed by a unit within Dept. of Environment, and assessed by a Review Panel. Project approval remains the prerogative of the sectoral authority.</td>
<td></td>
<td>'Handbook of Environmental Impact Assessment Guidelines' has been prepared.</td>
</tr>
<tr>
<td>Philippines</td>
<td>EIA procedures well defined.</td>
<td>EIA legislation enacted in 1987.</td>
<td>Environmental Critical Projects (ECP) or projects in Environmental Sensitive Areas (ESA) are subject to Initial Environment Evaluation (IEE); then EIA may or may not be necessary. The central agency and review secretariat is</td>
<td>Heavy industries, resource extraction, infrastructure projects, environmental critical areas</td>
<td>Since 1980, 3853 projects have been vetted, but only 58 required to submit EIAs.</td>
</tr>
<tr>
<td>Country</td>
<td>EIA Procedures</td>
<td>Environmental Protection Act</td>
<td>Relevant Environment Protection Dept.</td>
<td>Construction Projects</td>
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<tr>
<td>Thailand</td>
<td>EIA procedures well</td>
<td>National Environmental</td>
<td>Relevant environment protection dept. in a region centrally administers EIS process, whereby proposals are allocated to relevant agencies for an EIS if central agency considers it is appropriate.</td>
<td>EIAAs on 500 large and middle-sized projects, incl. smelters, nuclear power plants, petrochemical &amp; chemical plants, light industries, water conservation mining, airports, seaports, highways, rail, pollution, historical sites.</td>
<td></td>
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</tbody>
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Environment Management Bureau within the Dept. of Environment and Natural Resources. So far, insufficient skills exist for decentralization of review to the outlying regions.

Categories and magnitude of projects requiring EIA is specified. Office of the National Environment Board is the central agency for EIA administration, review, and monitoring. Other agencies prepare EIA for submission.

Watershed areas, solid wastes, coastal resources, land erosion, protected areas, pollution, conservation, regional development.

dam/reservoir/irrigation, airports, construction mass transit, highways, mining, industrial estates, seaports, power plants, industrial projects. EIAAs on 2000 projects. EIA also applied to planning programmes.
significant number of participants as priority issues have been retained in this paper, and there were many additional priority issues relevant to particular countries.

**Priority Issues That Need to Be Addressed to Make EIA More Effective**

**Training/Expertise**

Training/expertise, as could be expected, was seen as a priority issue in most countries. There is a need for technical and non-technical training, especially on skills sufficient for preliminary EIA, and in awareness, use, and application of EIA techniques and approaches; training that includes making key professionals, especially engineers and economists, aware of and sympathetic with the aims of environmental assessment; and the development of appropriate training modules, relevant to the home environment, particularly in regard to specific developing country methodology. Much of the methodology in the Western textbooks and reports is rarely used, owing mainly to problems of appropriateness but also to language difficulties. Further, there is need for training of enough personnel to build up government, private sector, and non-government organization (NGO) expertise in terms of technical capabilities and commitment to EIA work. Training to equip practitioners with a high level of expertise in several (not just one) of the relevant disciplines is needed for effective EIA work. Several participants noted that training for reviewers should perhaps be a different type of training that should involve regular training of those who are directly involved in the review of EIA’s. Specific training needs were identified by a few participants, for example, risk analysis and social assessment, though it is probable that this list would have to be enlarged if canvassed further. A small number of participants noted that training, although important, was not enough contract and international expertise was required, including finance to engage this expertise.

**Educating Decision Makers**

Educating the decision makers in the objectives and processes of environmental assessment is a critical issue which requires considerable resources and can not be left to chance. In general, there is need to develop an information campaign on EIA to policy makers, the private sector and the general public. There is need for more awareness about the pros and cons of EIA both at the national and provincial government levels, and at the town council level. Difficulties were evident in educating policy and decision makers to accept EIA as a requirement for development activities. EIA is still seen by most policy and decision makers as a hindrance to development. Methods need to be established to communicate to more senior decision makers the importance of applying EIA recommendations, for example, “What is the cost/benefit of protecting certain areas from the development of human settlements?” EIA should be made part of decision-making and policy-planning courses. For example, it could be incorporated into postgraduate courses in engineering, management, and public administration.

**Relationship between Environment and Sectoral Agencies**

Developing an effective relationship between environment and sectoral development agencies was listed as the third priority issue. Cooperation between agencies was seen as critical, that is, between government departments responsible for environmental protection and management (such as departments of environment, town and country planning, industry and commerce) and development sectors (such as departments of mining, fisheries). Improvement of cooperation, coordination, or integration among various planning agencies (public/private) and development sectors in the environmental assessment process is seen as crucial. New administrative arrangements were seen by some as essential to achieve this cooperation as effective interagency communication, coordination, or integration for environmental planning and management requires improved administrative arrangements. Environmental "contact officers" within sectors were seen as another possible solution. Environmental officers, with standardized training, and the ability to work efficiently in the EIA process, especially in technical review and assessment, are needed in all government planning departments.

**Public Participation**

Public participation and access to information as an issue was accorded high standing by workshop participants. The possibilities for public involvement in the EIA process tends to be misunderstood and some people have inflated expectations of what can be done (this is especially true of Western visitors). There are three roles for public participation: making the public more aware of plans, public involvement by identifying their attitudes to development and encouraging their co-operation, and public involvement in decision making. The latter was done in very few countries.

In the first role, public involvement at all stages of the EIA process has to be improved to increase effectiveness, validity, and accountability. However, regulations providing for public access to EIA records will not necessarily improve public participation as such records are often unavailable until after resolutions on projects have been made. Records need to
be available at all times. In the second role, there needs to be a strengthening of communication links between industry/proponent, government, EIA regulatory agencies, and the public who will be impacted by the project. In the third role, cultural constraints to participation need to be addressed.

**The Role of NGOs**

With regard to public participation, the role of NGOs was also perceived as being very important. NGOs can play a central role in the public involvement process by providing better communication, skills, and information about the development process in the community. Active participation of NGOs needs to be encouraged. However, some public environment pressure group views can be extreme and unpalatable to some governments. Legitimization of these NGOs may improve effectiveness of public representation.

**The EIA Policy Framework**

First, the national context needed clear, and well-documented, policies in order to enable countries to achieve sustainable economic development and environmental protection. Such policies should be achievable and suit the customs and culture of the local people. Within this, there is need for a more concrete and practical framework for national conservation strategy plans. Further, environmental assessment procedures at a national policy level need to be developed, with a supplementary framework provided for regional and site/project specific EIAs.

Secondly, although regional plans were desirable, it was noted that, currently, there is very little experience with EIA at this planning level because the majority of application has been at the project level. Procedures to include EIA at the regional level will require an evolution of present practice. Several participants referred to the relationship between planning and environmental assessment, and suggested that regional development plans themselves should be subject to environmental assessment.

**Legislation, Administration, and Enforcement**

Some countries noted the lack of environmental assessment legislation and associated administration. They suggested that there needs to be legislation specifically designed for EIA; appropriate legislation, regulations, and guidelines will allow government to effectively implement EIA for major developments or proposed actions; and there is an urgent need for the formation of government environmental management units that can enforce such legislation. Others with experience of legislation were more concerned with ineffective enforcement of the existing EIA procedures. For instance, one participant commented "eleven years after EIA began in my country, we have to examine exhaustively whether we have attained any of the goals we set out to achieve in EIA."

Some present systems appear to be too centralized. In addition, present federal/state systems of some governments make it difficult to enforce EIA for activities related to resource exploitation; usually these are under state jurisdiction whereas EIA is enforced by federal agencies. It was recognized that legislation can be too rigid and that there should be more emphasis on flexible administrative screening and scoping procedures.

As well, monitoring programs of environmental impact studies need to be implemented to analyze whether E1A goals have been achieved. Monitoring and enforcement required other agencies to support the environmental agency in monitoring the activity during implementation and subsequently taking action is the priority issue.

**Specific Problems in Project EIAs**

The most widely perceived problem was that of timing. Identification of the role and the location for environmental assessments in the design of projects was needed. This may give EIA more recognition and respect, and ensure that it remains a planning function, rather than merely a post-design check. Avoiding delay in the whole process of environmental assessment is crucial to making EIA acceptable. Planners and designers need to be able to provide information before a development project/program begins in that this will give increased opportunity to incorporate environmental concerns during the early stages of planning.

Another problem was a perceived futility of some environmental assessments in terms of their inability to modify the project. Popular comments were: "Most construction projects start before EIA work begins" and "The EIA work should begin at the planning stage of the project." Another situation that needs to be redressed is where project proponents have no budget/responsibility for implementing the mitigation measures and monitoring programs as proposed in the EIA reports.

A third problem was the communication of design information. For example: "In our country, most EIAs are undertaken by universities or research institutions. The professors and researchers at the universities or institutions have experience
in the environmental protection field, but they are not familiar with designs and technological processes of a project. Therefore they can hardly judge if the data and parameters supplied by the design department are correct.”

**Screening and Scoping**

In the screening of projects there is need to guard against the unbalanced application of EIA. The usual result was too many EIAs for small projects on the one hand, and too few for large projects on the other hand. Moreover, the present screening systems of prescribing activities for large projects can have many loopholes. For example: "Hotels with 79 rooms are a common proposal because screening processes require conduct of an EIA only when hotels of 80 rooms or more are to be built." It was suggested that more flexible screening processes are needed rather than the *a priori* or proforma "list." Scoping also needs to be improved, especially for detailed EIA studies of certain projects where local knowledge is lacking. And like elsewhere, there is difficulty in defining the scope of an EIA study.

**Prediction and Evaluation**

The quality of predictions and evaluations of impacts was also an issue. Higher validity and reliability of projections/predictions need to be achieved. Emphasis needs to be placed on appropriate techniques given local skills and resources. Less complicated techniques suitable for developing countries need to be developed (urgently). In particular, simpler EIA procedures/methodologies that can determine the carrying capacity of the environment, and can be applied by "regional" officials, need to be developed. An emphasis here was use of local knowledge and experience, both at the expert and nonexpert levels. The lack of local baseline data and the absence of data banks were seen as formidable issues--governments need to accept responsibility to prepare (and make available to all) information on resources availability, social needs, and cultural conditions.

**Sharing Environmental Assessment Experience**

It was recognized that there would be major advantages in being aware of the EIAs that have been completed in other countries, particularly developing ones (as well as other provinces/departments, etc). There needs to be an establishment of data banks, and interagency and international information links on EIA. Of great assistance would be an up-to-date inventory of all the projects submitted to environmental impact procedures, and the experiences by various groups should be communicated instead of being confidential and inaccessible. As an alternative it was suggested that an extremely valuable activity would be to share guidelines for the environmental assessment of sectoral developments.

**Some Special Issues**

Finally, there were some special issues worthy of attention. First, EIA should be avoided as a research tool. The difference between "research" and "assessment" is often confused which can lead to unjustified delays and costs. Secondly, in reviewing impact assessment there are serious constraints of time: an EIA and the process have to be hastened. Compounding this problem is the lack of trained reviewers and conflicting views among reviewers. Thirdly, local expertise is required in order to conduct EIA on a local basis instead of depending on foreign expertise which is always costly to developing countries. Another problem is lack of equipment. There is urgent need for improved resources for laboratory testing, data collection, and monitoring. Finally, on the issue of costs, it was found that while costs of project based EIA vary, a generally used figure for costs was around 0.1% of total project costs. It was suggested that benefits from EIA far outweigh these costs, and that various studies had found this to be so.

**Conclusions**

There were major differences in the natural and human resources available to each of the countries participating in the Workshop. Similarly, there was diversity in the institutional structures and political processes ranging from large federal systems to small island states, from participatory democracies to central single party governments. Naturally both the perception and the reality of the problems of environment and development would be expected to vary from country to country.

However, although there was a wide spectrum in the level of development of EIA procedures in the participants' countries, this workshop showed that there were common central issues in both procedure and application: the need for training and expertise (with a focus, in particular, to methodological approaches catering to the needs of the local environment); the need to educate the decision makers in the objectives and processes of environmental assessment; and the need to develop channels of communication between the environmental agency and sectoral development agencies, the public and non-government organizations. Sharing experience in EIA across national boundaries and clarifying the role of EIA in both national and regional plans were further positive suggestions. The issues raised
provided a clear message as to where the effort will have to be devoted over the next decade if the effectiveness of environmental assessment in developing countries is to be raised.

On the whole, the workshop participants remained uniformly enthusiastic about the valuable role of environmental impact assessment as a tool for ensuring that adverse environmental consequences received at least some consideration in development planning, even given current resource constraints for its application and shortcomings in the environmental assessment process itself. No views were expressed that EIA should be abandoned, only that it should be made more effective.

With development priorities now being realigned to the popular concept of sustainability, with its focus on fusing economic, social, and environmental concerns, there is a greater mandate for environmental assessment to be made more effective. This paper has sought to illustrate that, although environmental assessment procedures are widely utilized throughout the Pacific Basin and Southeast Asia region, there is still a long way to go before effectiveness is achieved.

One important way to hasten and facilitate the role of environmental assessment for sustainable development is to encourage the formulation of an indigenous (or local) adaptation and/or development of EIA. The workshop reported in this paper has sought to contribute to that process and has, we believe, clearly demonstrated the value of such an approach.

References

