INTRODUCTION TO STRATEGIC ENVIRONMENTAL ASSESSMENT

The environmental impact assessment (EIA) process has been primarily applied to development projects proposed for specific locations since its introduction in the United States in the early 1970s. However, we have seen through our look at cumulative environmental assessment (CEA) that project-level EIA is often not adequate for larger-scale decision making. In other words, project-level EIA and CEA do not provide enough information to make environmental decisions on a regional, national, or larger scales. In the same way that project-level EIA expanded into CEA, strategic environmental assessment (SEA) can be thought of as an extension of CEA. An emerging issue in the 1990s has been just such an application of the EIA process to environmental or development policies, plans, and programs (PPPs).

SEA refers to a systematic process for evaluating the environmental consequences of PPPs. The evaluation is intended to ensure that environmental concerns are fully considered and appropriately addressed at the earliest appropriate stage of planning. In this context, policy refers to a general course of action or proposed overall direction that a government is, or will be pursuing, and which guides ongoing decision making. A plan is defined as a purposeful, forward-looking strategy or design, often with coordinated priorities, options, and measures, which elaborates and implements policy. Finally, a program denotes a coherent, organized agenda or schedule of commitments, proposals, instruments and/or activities that elaborates and implements policy.

The essence of SEA is to evaluate environmental PPPs in order to determine their effectiveness. The best-written environmental policies, or the best-conceived environmental programs, are worthless if they do not enable the gradual achievement of a country's conservation or resource management goals. Environmental policies and programs should be evaluated periodically for their effectiveness, and through the 'early warning' built into the SEA process, they can be adapted to better serve environmental priorities.

SEA presents a unique opportunity for the riparian nations of the Mekong River Basin (MRB) to further control the use and development of their own natural resources. With so many environmental policies and programs still being developed (see Table 1) in the Lower Mekong Basin (LMB), environmental managers can evaluate the potential effectiveness of new environmental protection programs before those programs are even implemented. Weaknesses can then be identified and resolved before serious or irreparable resource management decisions are made.

Table 1 Examples of potential SEA applications in the MRB

	POLICY	PLAN	PROGRAM
Cambodia	National Environmental Action Plan for the Kingdom of Cambodia	Law on Environmental Protection and Natural Resource Management	
Lao PDR	National Environmental Action Plan	Decree No. 118 on the Management and Protection of Wild Animals, Fisheries and on Hunting and Fishing	Guidelines for Reducing the Environmental Effects of Road Projects in the Laos PDR
Thailand	Enhancement and Conservation of the National Environmental Quality Act	Wildlife Conservation and Protection Act	Surface water quality standards
Vietnam	Vietnam Biodiversity Action Plan	Law on Environmental Protection	Surface water quality standards

More effective environmental planning could be realized through the planning and conduct of SEAs. For example, SEA can help give environmental concerns an importance similar to that of other aspects of development (e.g., economic, market requirement, financial, and technological) in decision making. It can also encourage the identification of environmental goals along with social and economic goals.

SEA should be viewed within the overall context of impact studies related to PPPs and project-level EIA. In many contexts, SEAs have improved administrative efficiency by means of 'tiering,' a process in which EIAs are first undertaken at a policy or program level, and subsequent EIAs are then conducted at a lower tier, the project level. Tiering enhances efficiency when proposed projects are consistent with projects already considered at a higher level (i.e., SEA). In this case, project level EIAs can refer to, rather than redo, analysis already conducted in the SEA. Tiering can be misused, however, if a project-level EIA is not carried out thoroughly because it is assumed that project impacts were already assessed adequately in an SEA. Such misuse is possible because projects included in a SEA are typically characterized in very general terms.

Often, projects are included in a SEA well before key design parameters have been set. In some jurisdictions (for example, in Britain), SEAs and project-level EIAs are intentionally separated to ensure that the detailed analyses required in project-level EIAs are not sacrificed by making reference to the more general, qualitative analyses typically included in SEAs. To illustrate the relationships, Figure 1 depicts a tiered system of planning and environmental impact studies. This system has general applicability in all developing and developed countries; however, it should be recognized that it was developed based on land use and environmental planning practices in Britain and would need to be adapted to match specific country practices.

Figure 1 An example of a tiered system for environmental impact studies

COMPARISON OF SEA AND PROJECT-LEVEL EIA

Project-level EIAs have been subjected to much criticism. Common shortcomings are as follows:

- EIA conducted too late in project cycle to influence key decisions
- Proposed mitigation measures are often not implemented
- Little post-project monitoring of impacts or mitigation measures
- Cumulative impacts not properly analyzed
- Insufficient attention to risk assessment, social impacts and health risks
- EIA conducted primarily for projects, but usually not for programs or connected policies.

Some of these limitations, particularly problems related to the late timing of EIA in the project cycle, and the lack of attention in project EIAs to cumulative impacts, can be overcome by conducting SEAs. Perhaps the most common form of SEA has been the assessment of environmental impacts of land use plans at the municipal and regional levels.

SEA can overcome the limitations of project-level EIAs by:

- Increased opportunities to affect projects
- Consideration of a broader range of alternatives
- Improved analysis of cumulative impacts
- Enhanced efficiency via 'tiering'
- Increased opportunities to promote sustainable development.

Because SEA occurs before project-level decision making, SEAs can consider a more complete array of alternative actions, and they can improve the way environmental factors are integrated into project-level decisions. In addition, since the geographic scale is often broad, SEA provides an instrument for examining the cumulative effects of related projects.

There are several means by which SEAs and project-level EIAs can be compared. While many similarities exist, there are also distinctions. Some of the more significant differences include:

- The scale of a SEA – in terms of actions and related activities, range of considered alternatives, geographical area of study, and range of pertinent impacts – tends to be greater than that of an EIA
- The time interval between conducting a SEA and implementation of specific activities is typically longer than for an EIA
- The technical content and specificity of a SEA will be less detailed than for an EIA
- Impact prediction uncertainties will be greater for a SEA than for an EIA.

ADVANTAGES (USES) OF SEA

Three of the most significant advantages of SEA are:

1. As a means to strengthen project-level EIA
2. To address cumulative and large scale effects
3. To incorporate sustainability considerations into the 'inner circles' of decision making.

In addition, SEA enables the consideration of alternative approaches, regional or global impacts, and non-project impacts that may result from management decisions. These types of impacts all are better assessed initially at the PPP level rather than at the project level.

Some added benefits of SEA include:

- Encourages the consideration of environmental objectives during PPP-making activities
- Facilitates consultations between government agencies on, and enhances public involvement in, evaluation of environmental aspects of PPP formulation
- May render some project EIA redundant if impacts have already been assessed adequately in the SEA
- May leave examination of certain impacts to project EIA
- Allows formulation of standard or generic mitigation measures for later projects
- Encourages consideration of alternatives often ignored or not feasible in project EIA
- Can help determine appropriate sites for subsequent projects
- Encourages and facilitates the consideration of synergistic effects
- Allows more effective consideration of ancillary or secondary effects and activities
- Facilitates consideration of long range and delayed impacts.
- Allows analysis of the impacts of policies which may not be implemented through projects.

DIFFICULTIES (BARRIERS) RELATED TO SEA

While there are many benefits related to planning and conducting SEAs, difficulties (barriers) and limitations have also been identified for such applications. Consequently, while the potential advantages of SEA have been discussed in the EIA literature for more than a decade, use of SEA still remains at a relatively low level. Some of the reasons that many countries have not embraced SEA with enthusiasm are:

- Insufficient political will and commitment to SEA
- Lack of experience and guidance
- Lack of coordination among government ministries and agencies
- Ambiguity and generality in definitions of PPPs
- Cost and time requirements.

One key barrier that has been identified is that for most PPPs there is often not a clear point in time when a decision is made. Another barrier is that while broad environmental concerns are often already addressed in general planning activities for geographical areas, regions, states or countries through land use legislation and land use planning, not all aspects are adequately considered. Lack of political will is also a common barrier. Often, the major deterrent to SEA is political – government agencies are reluctant to defer some of their role in decision making to other parties by requesting SEAs of their activities.

Additional barriers to greater usage of SEA include:

- Lack of knowledge and experience (e.g., determining which environmental factors to consider, what environmental impacts might arise, and how integrated policy-making can be achieved)
- Institutional and organizational difficulties as reflected by the need for effective intra- and inter-governmental coordination
- Lack of resources (e.g., information, expertise, financial)
- Lack of guidelines or mechanisms to ensure full implementation
- Difficulty in clearly stating new PPPs and in defining when and how SEA should be applied
- Methodologies not well developed
- Limited involvement of the public in decision making.

EXAMPLES OF SEA REQUIREMENTS

Several countries or provinces within countries have either direct or indirect requirements related to SEA. Examples of provinces or states include Western Australia, South Australia, and California. Examples of countries with requirements include Australia, Britain, Canada, Netherlands, New Zealand, and the US. Requirements can be based on legislation, administrative orders or directives, or advisory guidelines or operational policy.

In the US, the Council on Environmental Quality (CEQ) regulations contain concepts and definitions related to EIA. These regulations also include the concepts of SEA, although the focus is on what are called 'programmatic environmental impact statements (EISs)' and 'tiering.' Fundamentally, EISs are required on major government actions. Such actions can include PPPs. Programmatic EISs are related to project-level EISs via tiering.

Government agencies in the US are encouraged to tier their EISs to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review. Sometimes a broader EIS can be prepared, addressing the general environmental concerns of a particular program or policy statement. Later, a more specific statement or environmental assessment can be prepared on an action included within the entire program or policy (e.g., site-specific action). The subsequent site-specific EIS or EIA need only summarize the issues discussed in the broader statement, and may incorporate discussions from the broader statement by reference. The site-specific report is expected to concentrate on the issues specific to the proposed project or activity.

CONCLUSIONS

SEAs are receiving greater attention in the worldwide practice of EIA. The broader range of factors within SEA can represent both opportunities and concerns related to planning considerations for enhancing environmental quality and/or minimizing environmental deterioration. Opportunities are reflected by a more logical basis for choosing the geographical area for study within the SEA. Further, decisions regarding where to locate a project can be based on protecting the most valuable/sensitive natural resources. Planning can also be done from a holistic perspective and not

from a more limited institutional focus. However, there are numerous concerns related to planning and implementing SEA studies. Pragmatically, such concerns include:

- Lack of PPP specificity may limit specific considerations, thus an 'impact footprint' approach is needed
- Unavailability of regional/national plans for reference, or the availability of limited plans which are out of date
- The larger scale of SEA multiplies the effort needed for data gathering on other projects, environmental resources, laws, etc.
- The environmental (i.e., both biophysical and socioeconomic) carrying capacity needs to be considered, and there may be a lack of information on this capacity
- Uncertainties may be greater than for project-level EIA
- The primary impact focus of SEA should be on cumulative impacts (i.e., effects)
- There is typically a greater need to address transboundary impacts
- The possible confusion as to whether certain topics should be addressed in a SEA or a subsequent project-level EIA, or both.