

4. Outline of EIA for Development Assistance

4.1 EIA and Development Planning

EIA has an important role to play resolving these environmental problems through its ability to contribute to environmentally sound and sustainable development. Developing countries in Asia have recognized the importance of incorporating EIA processes into development planning. Development planning takes place at a number of different scales, and environmental concerns need to be considered at each one of them. Development planning is designed in various stages. This chapter describes the structure of EIA and development planning.

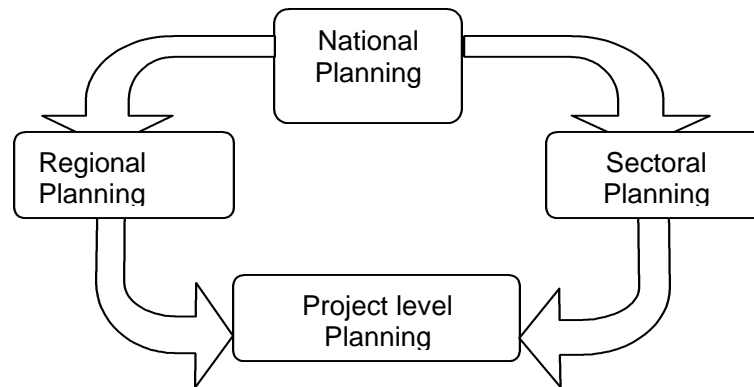


Figure 2: Development planning hierarchy
(Modified Asian Development Bank, 1993a)

Development Planning Hierarchy

National Planning	The aim of national planning is to set broad economic, environmental, and social development goals for the country's continuing development. At this level, the employed mechanisms include the formulation of a national conservation strategy, environment and natural resources management plans, state-of-the-environment reports, environment and natural resources profiles for developing countries and incorporation of environmental and natural resources considerations in economic planning and national development plans. These activities are the important elements of the overall national environmental policy.
Regional Planning	Regional planning defines broad land use allocations for a geographic region, normally at the sub-country level. At the regional level, the approach should integrate environmental concerns into development planning. Such an approach is referred to as economic-cum-environmental (EcE) development

planning (Asian Development Bank, 1993a). This approach facilitates adequate integration of economic development with management of renewable natural resources to achieve sustainability. It fulfils the need for macro-level environmental integration, which the project-oriented EIA is unable to address effectively. Such regional plans can set the context for project-level EIA. In considering regional plans, the environmental impacts of alternatives need to be assessed.

Sectoral Planning

Sectoral planning focuses on the needs of individual development sectors (for example, energy, transport, and forestry). At the sectoral level, environmental guidelines and sectoral reviews and strategies should be formulated and integrated into various sectoral plans. This will help to address specific environmental problems that may be encountered in planning and implementing sectoral development projects. Sectoral plans, however, must also consider the relationships between sectors to avoid land use and infrastructure conflicts.

Project Planning

At the project planning level, EIA is the primary tool for integrating environmental considerations into project design and execution. Project proponents and regulatory agencies prefer to consider the environmental impacts of a single project. Ideally, EIA at the project level should take place in the context of regional and sectoral level planning; if this is not feasible, the scope of EIA reports may have to include the considerations of broad land use issues. In addition, if environmental effects are considered only at the project level, decision makers will have difficulty taking account of cumulative environmental effects. These are impacts which at first instant may appear minor for any one project, but can become significant when groups of related projects are considered together. The absence of regional and sectoral planning increases the time duration and cost involved in the preparation of the EIA report and thus project approval becomes costly and time-consuming.

Table 2 Integration of environmental concerns into development planning

Level	Integration of Environment Policies & Procedures	Environmental impact assessment Planning or Management Techniques Used
National	Environmental policy included in national action plan	<ul style="list-style-type: none"> • Environmental Profiles • International Assistance Agency • Country programming
Regional	Economic-cum-environmental development	<ul style="list-style-type: none"> • Integrated regional development planning • Land use planning • Environmental master plans
Sectoral	Sectoral review linked with other economic sectors	<ul style="list-style-type: none"> • Sector environmental guidelines • Sector review strategy
Project	Environmental review of project activities (EIA procedures)	<ul style="list-style-type: none"> • EIA • Environmental guidelines

Source: Asian development Bank, 1993a (Modified)

EIA, EcE, and sectoral planning are important mechanisms by which environmental factors are included in the development planning process. EcE and sectoral planning evaluates development from the national or sub-country perspective, whereas the EIA is project oriented. When EcE or sectoral plans are available they simplify the EIA process. If they are not available (as is often the case), the project EIA must attempt to evaluate the regional and national implications of the project.

The integration of environmental considerations within the planning process has evolved similarly in both developing and industrialized countries. In Asia, the Asian Development Bank (ADB) and other institutions are currently assisting developing countries to establish, formulate, and apply regional EcE development plans and project EIA planning tools and methodologies. As such, EIA is being used as a tool for influencing development decisions not only in industrialized countries, but also in developing countries as well.

4.2 EIA Inputs to the Project Cycle

Increasingly, Asian countries are enacting laws requiring EIAs for all major projects. Indeed, in many countries EIA must be an integral part of the feasibility study. Where these laws are enforced, they can be a powerful means of directing development towards sustainability.

Another major trigger for EIA is project financing. In many cases, a review of the project's EIA is a mandatory requirement of financing. Few lending institutions and investors, whether international

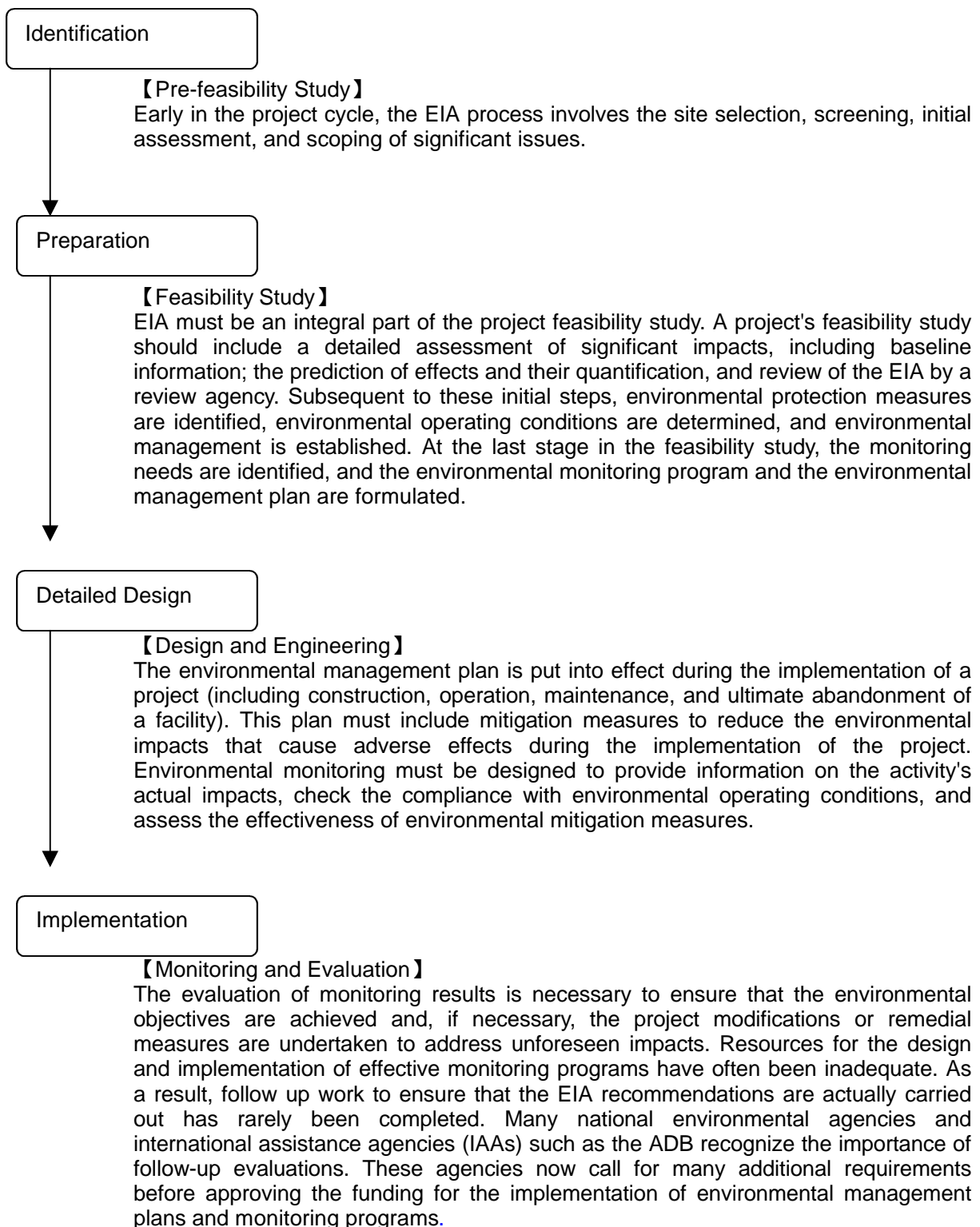
financial institutions or private sources of capital, are willing to risk their funds on projects which do not meet environmental standards . These conditions have resulted in a careful integration of environmental review procedures at various stages of the “ project cycle. ”

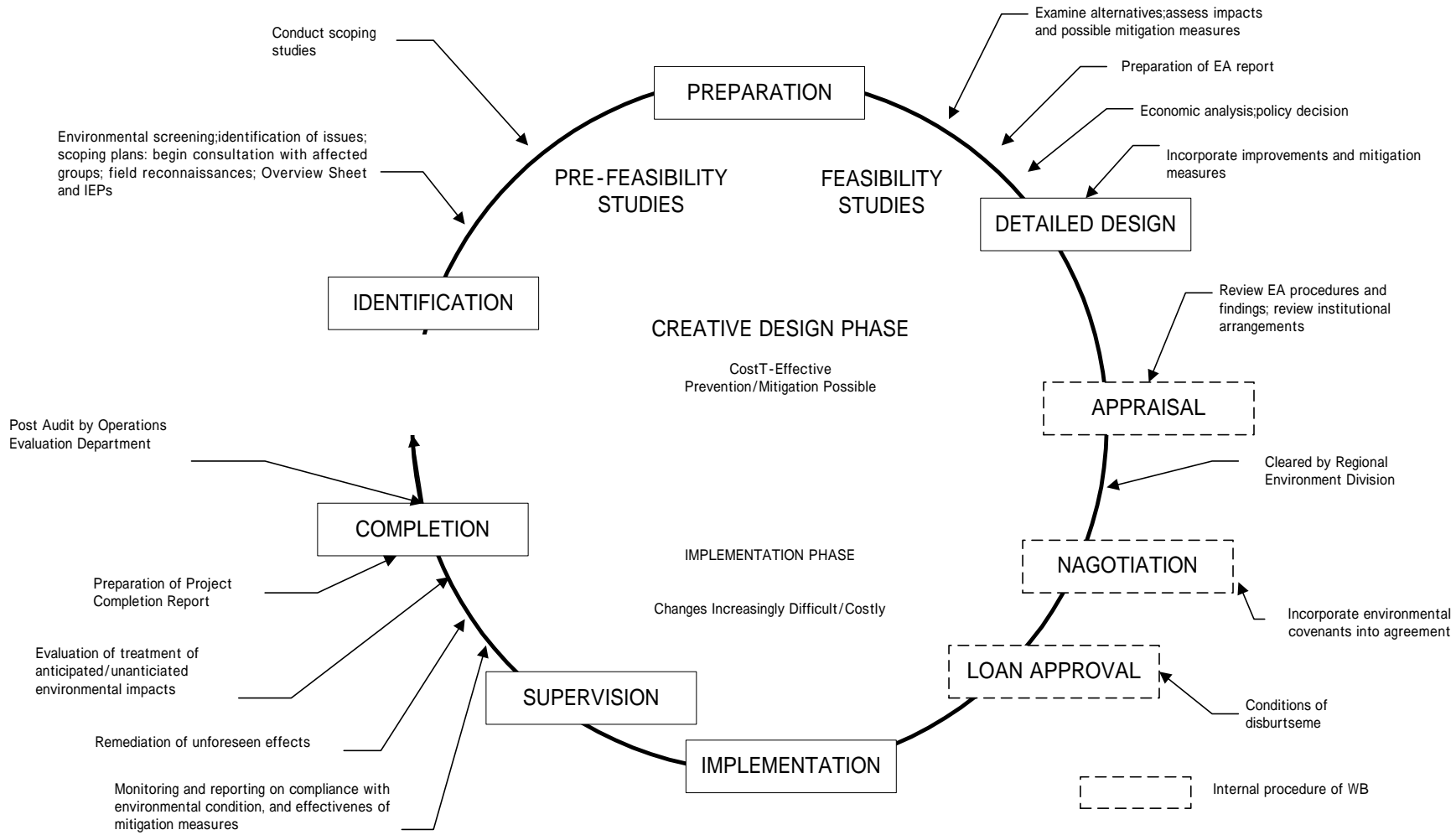
A generalized project cycle can be described in terms of six main stages:

- 1) project concept;
- 2) pre-feasibility;
- 3) feasibility;
- 4) design and engineering;
- 5) implementation; and
- 6) monitoring and evaluation.

EIA has a role to play at each stage in the cycle, as shown in Figure 2. Most EIA activities take place during the pre-feasibility and feasibility stages, with less effort devoted to implementation, monitoring, and evaluation stages. In general , EIA should enhance the project and augment the project planning process.

As shown in Figure 2, each step of EIA process has its own objectives for each step. Most EIA put importance on pre-feasibility study and feasibility study, while implementation, monitoring, evaluations are not. Generally, EIA enhance the project plan and makes it more efficient.





World Bank, 1991

Figure 3 Environmental Assessment and the Project Cycle

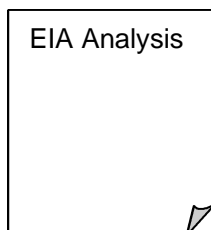
4.3 Outputs in the Development Planning Decision

The main goal of EIA is to influence development decision-making by providing sound information on environmental impacts and also the means for preventing or reducing the adverse effects on the environment. Three major outputs of the EIA process provide the primary means for integrating the results of a specific EIA into the development planning decision process and the concurrent environmental regulatory process.

- Identification and analysis of the environmental effects of proposed activities (including their probability of occurrence);
- Environmental management plan which outlines the mitigation measures to be undertaken; and
- Environmental monitoring program which outlines the data that must be collected during the implementation of the project.

All three outputs are required for the EIA process to be effective. In some jurisdictions, the documentation for the EIA process requires that three separate documents be prepared, one for the impact assessment, one for the environmental management plan, and one for the environmental monitoring program. In other cases, all the three are presented together as the part of the EIA document.

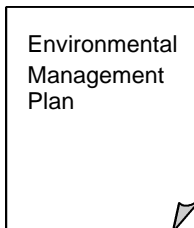
Environmental management is usually integrated into the project management system associated with the construction, operation, and maintenance of the project. Environmental monitoring is normally considered one of the responsibilities of the environmental management system. When successfully integrated with the environmental management system for the project, environmental monitoring can provide a valuable feedback about the effectiveness of environmental protection measures. Where monitoring shows that the environmental protection measures have been ineffective, the corrected action should be undertaken accordingly.



EIA analysis has three sequential phases, that is, identification, prediction, and assessment. Identification involves characterizing the existing physical, social, economic, and ecological environment and identifying components of a development project which are likely to impact that environment. The impacts may be described according to the geographical area and time period over which they are expected to occur.

During the prediction phase, the project impacts are quantified using standards and by comparison with the findings of other projects. Basically, the predictive function of an EIA is to forecast the nature and magnitude of the identified environmental impacts, and to estimate the likelihood of occurrence

for those impacts. The assessment phase judges the importance or significance of the predicted impacts. The results of the assessment phase, in terms of the beneficial or adverse impacts for the proposed project and its development alternatives, are communicated to decision-makers. Population groups that may be directly or indirectly affected by the project are identified. The assessment determines costs and benefits to user groups and the population affected by the project. It also specifies and compares trade-off between various alternatives.




One of the goals of the EIA process is to develop an implemental set of environmental protection measures. These measures are normally set out in an environmental management plan.

Environmental protection measures are taken to:

- 1) mitigate environmental impacts;
- 2) provide in-kind compensation for lost environmental resources; or
- 3) enhance environmental resources.

A well-structured environmental management plan usually covers all phases of the project from pre-construction to decommissioning. It addresses all major environmental issues and impacts identified during the EIA process. The plan outlines environmental protection and other measures that would be undertaken to ensure compliance with the environmental rules and regulations so as to reduce or eliminate adverse impacts. The plan defines:

- the technical work program to carry out this plan, including details of the required tasks and reports, and the necessary staff skills, supplies, and equipment;
- a detailed accounting of the estimated costs to implement the plan; and
- the planned operation for the implementation of the plan, including a staffing chart and proposed schedules of participation by the various members of the project team, and an outline of activities and inputs from various governmental agencies.



Environmental
Monitoring Plan

Environmental monitoring involves the systematic collection of data to determine

- 1) the actual environmental effects of a project;
- 2) the compliance of the project with regulatory standards; or
- 3) the degree of implementation of environmental protection measures and their successful application.

The information generated by monitoring programs provides the feedback necessary for effective application of the environmental protection measures to achieve an environmentally sound project.

The environmental monitoring program plan outlines the monitoring objectives; the specific information to be collected; the data collection program (including sampling design); and the management of the monitoring program. Program management assigns the institutional responsibility, defines the reporting requirements, ensures the enforcement capability, and confirms that the adequate resources are provided in terms of skilled staff, equipment, training, and funds.