These Updates either replace or complement parts of the Environmental Assessment Sourcebook, published in 1991, as part of the World Bank Technical Papers Series, numbers 139, 140, and 154.
The World Bank and Environmental Assessment: An Overview

The sustainability of economic development has become one of the most important challenges facing the World Bank in recent years. In response to growing awareness regarding environmentally sustainable development, the Bank is promoting a variety of initiatives ranging from environmental assessment (EA) for specific projects or sectors to national environmental strategies and action plans.

This first issue of EA SOURCEBOOK UPDATE provides a brief review of Bank efforts to integrate environmental concerns into the mainstream of its lending activities during the last two decades. It also gives a summary of the main findings and conclusions of the first EA Annual Review, and institutional responsibilities for implementing the EA process in Bank operations. This Update belongs to Chapter 1 in the Update Binder and does not replace any section of the EA Sourcebook.

Background

A brief review of policy statements and directives during the past decade reveals the World Bank’s increasing efforts to broaden its traditional approach to project development. Environmental concerns first became an explicit part of Bank activities when the position of Environmental Advisor was established in 1970. The Bank played an active role in this area by becoming the first multilateral development agency to screen projects for their environmental consequences and to adopt environmental guidelines for the evaluation of future lending operations.

One of the first significant policy statements issued was Operational Manual Statement 2.36: “Environmental Aspects of Bank Work,” in May 1984, requiring that environmental considerations be introduced at the time of project identification and preparation, and recognizing that modification could also occur at the time of appraisal, negotiations, and implementation. For all projects, staff were instructed to use prudent judgement when assessing environmental effects that were potentially irreversible (for example, the extinction of species or ecosystems). The new policy further stipulated that projects with severe environmental impacts would not be financed without mitigatory measures acceptable to the Bank (para. 9[b]).

By the mid-1980s, the Bank was financing projects containing environmental components, including several free-standing environmental projects, which had specific environmental objectives, such as reforestation, pollution control, and water resource management. Although these measures were designed to help both borrowers and the Bank improve the environmental quality of projects, problems remained. In developing countries, serious environmental degradation accelerated and began to constrain economic development. It became apparent to Bank management that the degree of effort devoted to environmental issues and the approaches actually used were insufficient to ensure full consideration of adverse environmental impacts during project identification, design, and implementation.

This, combined with a few well-publicized cases in which Bank-financed projects were found to have
negative environmental consequences — such as contributing to the destruction of tropical rain forests and posing threats to wildlife, indigenous people, and established human settlements — prompted the institution to adjust its policies toward environmental management and to systematically bring environmental issues into the mainstream of its lending activities.

In 1987, the Bank implemented a series of structural changes that included strengthening of environmental policies, procedures, and staff resources. A central Environment Department and Environment Divisions in each of the four regional Technical Departments were created, leading the way to a significant expansion of Bank staff assigned to execute, monitor, and support environment-related activities. The new Environment Department would help set the direction of Bank environmental policy, planning, and research and take the lead in developing strategies to integrate environmental concerns into Bank lending and policy work. The regional divisions would review and give clearance to Bank-financed projects and provide technical support on individual projects, sector programs, and country or regional strategies, thus helping borrowing countries to design and implement more sustainable approaches to development.

EA Guidelines for the World Bank

Since the 1987 reorganization, the Bank has moved decisively in institutional strengthening and policy reform. A notable achievement was the introduction of an Operational Directive on Environmental Assessment (OD 4.00, Annex A) in October 1989. This comprehensive and detailed new policy mandated an environmental assessment for all projects that may have significant impacts on the environment. Bank staff were required to screen and categorize all prospective loans (Category A through D) for potential adverse environmental problems at the time of project identification.

Although the borrower had the responsibility for carrying out the environmental assessment, the Bank would play a review and follow-up role to ensure that the project had been adequately prepared; for example, assisting the borrower in preparing the terms of reference (TOR) for the environmental assessment. With careful planning, generally in the form of a mitigation plan, adverse environmental effects could be avoided or mitigated. The directive recommended regional and sectoral assessments to reduce the work subsequently needed on specific investment projects. It also required that the borrower undertake appropriate consultation with and disclosure of information to affected groups and local nongovernmental organizations.

After two years of Bank experience with environmental assessments, the operational directive was revised to broaden its scope and applicability. The Bank recognized that projects aimed at achieving environmental objectives could sometimes have negative and unanticipated effects. In October 1991, OD 4.00, Annex A was replaced by OD 4.01 (see summary of revisions in Box 1). The revised directive, which incorporated the guidelines contained in OD 4.00, Annex A, introduced a new system for classifying projects according to the nature and extent of their environmental impact. It provided more specific instructions to staff on public consultation and disclosure of information. It also recommended that the Environmental Assessment Sourcebook, published in the World Bank's Technical Papers Series during fiscal 1991-92, be used for guidance throughout the environmental assessment process.

First Environmental Assessment Annual Review

The first annual EA review, initiated in late 1991, covered the period from October 1989 to October 1991 and extended through the end of fiscal 1992. It was prepared in close collaboration with the Regional Environment Divisions and reviewed by the Environmental Assessment Steering Committee, as well as staff throughout the Bank. The main findings and conclusions were based on interviews with Bank regional environmental staff and selected task managers, a survey of twenty projects for which environmental assessments had been completed and evaluated by the end of fiscal 1992 under the requirements of OD 4.00, Annex A, and detailed case studies of seven of these projects.

The Bank's EA procedures were proven to be realistic, workable, and instrumental in helping to improve development planning and environmental management. Even in countries with minimal or no prior experience, the EA process was a valuable tool for identifying project problems and the means to avoid or mitigate them. Although the review documented considerable progress, it also revealed that the new policy required additional human and financial resources for Bank EA work. The review identified the following areas where Bank efforts should be continued and/or strengthened to make the EA process more effective:

- Borrower capacity building, including technical assistance, institutional support and in-country training should be given greater attention to help ensure that environmental assessment becomes an effective planning tool during project preparation and that the EA report presented to the Bank adequately covers all relevant issues and are of acceptable quality.
- Borrower requirements should be explicitly taken into account in defining the EA preparation schedule to ensure that the EA process is initiated at an early enough stage to accommodate in-country review procedures.
Box 1. Operational Directive 4.01: “Environmental Assessment”

The revised OD 4.01: “Environmental Assessment” includes the following principal changes from O.D. 4.00, Annex A:

Screening. Projects with multiple components are to be classified according to the component with the most significant adverse impact, i.e., if there is an “A” component, the entire project is “A” (para. 17 and Annex B). The “D” Category has been eliminated as well as combined categories (A/D, or B/D) to reduce screening differences.

Consultation. Consultation with affected groups and NGOs should include: (i) making available to the groups being consulted a summary description of the project, its objectives and potential adverse impacts, shortly after assignment of the EA category; (ii) providing a summary of the conclusions of the draft EA report, in a form and language that are meaningful to the groups being consulted; and (iii) taking consulted groups’ views fully into account in the design of the EA study and the report, as appropriate (paras. 19, 21).

Release of the Environmental Assessment to the Executive Directors (EDs). The Bank requests the borrower’s advance permission to release the EA report to the Executive Directors (EDs) because the report is the borrower’s property. On receipt of a copy of the EA report from the borrower, an English-language summary is made available to the EDs, and a copy of the report is deposited in the project file (para. 22).

Environmental Mitigation Plan. Annex C outlines items to be covered in the environmental mitigation plan and incorporated into the project.

Global Environment Facility, GEF projects and components are subject to EA requirements under OD 4.01 (para. 1 and footnote 1).

Environmental Advisory Panels. The borrower should normally engage advisory panels of environmental specialists for ‘major, risky or contentious’ projects; this section tightens the original OD 4.00, Annex A, which recommended that establishment of such panels for projects with major environmental concerns be “explored” with Government (para. 13).

Relation Between Preparers of EA and Feasibility Study. In the case of projects with potentially major adverse impacts, the preparer of the EA should not be affiliated with the project, but should liaise closely with project preparation/feasibility teams (para. 16).

Grandfathering. OD 4.01 applies to projects with IEPS issued after October 1, 1991.

- EA training within the Bank should continue, as should the use of case studies for this purpose. However, training should become more sector-specific. Bank case studies should be developed to provide greater orientation to staff on methods of local consultation and regional and sectoral environmental assessments.

- Additional guidance on project screening should be provided to Bank task managers to ensure that classification for purposes of environmental assessment is consistent across regions.

- Field visits, including consultation with affected populations and local NGOs, should be a consistent part of scoping activities for projects requiring a full EA.

- The “Checklist of Potential Issues for an Environmental Assessment” (OD 4.00, Annex A-2) should be used for Terms of Reference (TOR) preparation for EA work and associated scoping so that key aspects and possible impacts are not missed.

- The potential benefits of regional and sectoral EAs should be more widely disseminated to borrowers and Bank staff and utilized to a greater extent.

- Work is currently underway to follow up on these recommendations, particularly in the area of EA training.

Institutional EA Responsibilities

Country Departments in the operational vice presidencies, working closely with the Regional Environment Divisions, are directly responsible for overseeing and appraising project preparation. The project task manager, in consultation with the Regional Environment Divisions, is responsible for environmental screening, preparation of terms of reference for EA work when an environmental analysis is required, monitoring of the EA process, and review of the report in draft and final form. A summary of the findings is prepared as an annex to the project staff appraisal report. The Regional Environment Divisions oversee the work in their respective regions and offer technical expertise and policy advice to TMs and borrower governments.

The Environment Department works closely with operational vice presidencies, particularly the Regional Environment Divisions, to ensure that the environmental assessment process is effectively integrated into Bank activities. To this end, the role of the Department, now housed in the Environmentally Sustainable...
Development Vice Presidency (ESDVP), is to give clearer focus to analytical, policy, and operational support to activities related to "brown" (e.g., industrial pollution and urban infrastructure) as well as "green" (e.g., agriculture, forest management and biodiversity) issues in its work program. Recently, the Department has also become a focal point for addressing social and resettlement issues in Bank lending operations.

The "green" unit of the Environment Department, the Land, Water and Natural Habitats Division (ENVLW), oversees and coordinates the Bank's work on environmental assessment. The Division provides operational support for analytical work, project preparation, and supervision on issues related to biodiversity, forestry, coastal zone management, and environmental information management. The Division's EA team systematically monitors the Bank's follow-up of the EA Operational Directive and is responsible for preparing the EA Annual Review, which is submitted to the President. The team is also responsible for continuously updating the EA Sourcebook as a "living" reference manual for Bank staff and external users through the series of "EA Sourcebook Updates". Finally, the team offers project-specific operational support on EA-related issues, especially during the preparation and supervision stages of the project cycle. Special attention is given to sectoral and regional environmental assessments, and environmental aspects of privatization activities, financial intermediary and adjustment operations.

The "brown" unit, the Pollution and Environmental Economics Division (ENVPE), provides technical and economic analytical support with respect to issues relating to land and water pollution, atmospheric emissions and air quality, and global climate change. It is also responsible for work on the economic valuation of environmental damage and the impacts of economic policies on the environment. The Division offers guidance to Bank staff on how to internalize environmental costs and benefits in economic analysis, which is particularly important when considering alternative project options.

The Social Policy and Resettlement Division (ENVSP) addresses the social dimensions of sustainable development, particularly the social organization of resource management. It provides leadership in social impact assessment, and support work on the social strategies in project design and implementation. The division supports the EA process by improving social analysis in specific areas of Bank activity, e.g., involuntary resettlement, treatment and rights of indigenous peoples and other ethnic minorities, public participation and consultation, NGO intermediation and institutional capacity building.

**EA SOURCEBOOK UPDATE** is designed to provide the most up-to-date information on the Bank's policy and procedures for conducting environmental assessments of proposed projects. This publication should be used as a supplement to the Environmental Assessment Sourcebook, which provides guidance on the subjects covered in Operational Directive 4.01. Please address comments and inquiries to Olav Kjørvæn, Managing Editor, EA Sourcebook Update, ENVLW, The World Bank, 1818 H St. NW, Washington, D.C., 20433, Room No. S-5123, (202) 473-1297.
Environmental Screen

Environmental screening is intended to ensure that proposed projects are subject to the appropriate extent and type of environmental assessment (EA). This EA Sourcebook Update provides guidance to Bank staff on environmental screening, based on the Bank's EA policy and evolving EA experience. This Update replaces the screening section in chapter 1 of the Environmental Assessment Sourcebook (pp. 4-5).

Requirements for screening

The World Bank's EA process generally begins with screening at the time of project identification. At this stage, the project is classified into one of three categories prior to issuance of the Project Concept Document. The chosen category signals the appropriate level of EA required. Environmental screening also helps determine the choice of EA instruments, depending on the needs of the project.

Determining the level of EA

The Bank uses the following three categories to signal the appropriate level of EA for any given project:

- **Category A**: A full EA is needed in accordance with the specific requirements of the Bank's EA policy and procedure for Category A projects, including in areas such as public disclosure, public consultation, and the timing for submitting the EA report to the Bank—see Operational Directive (OD) 4.01, soon to be reissued as Operational Policy/Bank Procedure/Good Practice (OP/BP/GP) 4.01.
- **Category B**: EA is required, but its scope corresponds to the limited environmental impacts of the project (again, the Bank's EA policy and procedure provide specific guidance).
- **Category C**: No EA is required.

The selection of the category should be based on professional judgment and information available at the time of project identification. If the project is modified or new information becomes available, Bank EA policy permits the TM to recategorize a project with the concurrence of the RED. For example, a Category B project might become Category A if new information reveals that it may have diverse and significant environmental impacts when they were originally thought to be limited to one aspect of the environment. Conversely, a Category A project might be reclassified as B if a component with significant impacts is dropped or altered.

The option to reclassify projects relieves some of the pressure to make the initial decision the correct and final one. However, reclassification is not free of cost. For example, if a Category B project is later changed to Category A, additional resources will be required for environmental studies, public consultation, and report preparation. The schedule for project preparation will almost certainly be adversely affected.

Selecting appropriate EA instruments

In parallel with determining the appropriate project classification, the screening process should also identify the types of EA instruments that may be suitable for the project. Box 1 lists different project categories and EA instruments that are often useful in conjunction with such projects. This list is illustrative and the final decision on the use of these instruments has to involve the borrower.

Opportunities for undertaking strategic forms of EA (sectoral or regional EA) should be considered early—if possible before the identification of concrete projects—in order to optimize the influence of the EA process on the selection and design of projects (Updates nos. 4 and 15 provide guidance on sectoral and regional EA).

Criteria for making the classification decision

Initially, it is useful to look at key words in OP 4.01 (forthcoming) to describe each screening category. Projects are
Box 1. Project categories and corresponding EA instruments

This list provides an overview of EA instruments that are typically relevant for different categories of projects. For any one project, the choice of instrument(s) should be tailored to the environmental issues at hand. For some situations, the use of just one instrument is appropriate, other times it makes most sense to combine two or more instruments (for example, EIA and risk assessment) or to sequence them (for example, a sectoral EA followed by a number of EIAs for subprojects).

<table>
<thead>
<tr>
<th>Project type and scale</th>
<th>Instruments</th>
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<tbody>
<tr>
<td>Investment projects</td>
<td>EIA, risk assessment</td>
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<tr>
<td>Sector adjustment loans</td>
<td>Sectoral EA</td>
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<tr>
<td>Sector investment and “time-slice” operations</td>
<td>Sectoral EA, EIA (for subprojects)</td>
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<tr>
<td>Urban development program/project</td>
<td>Regional EA, EIA (for subprojects)</td>
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<tr>
<td>Rural development program/project</td>
<td>Regional EA, EIA (for subprojects)</td>
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<tr>
<td>River basin or watershed program/project</td>
<td>Regional EA, EIA (for subprojects)</td>
</tr>
<tr>
<td>Rehabilitation and maintenance projects</td>
<td>Environmental audit, hazard/risk assessment</td>
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<tr>
<td>Industrial expansion projects</td>
<td>EIA, environmental audit, hazard/risk assessment</td>
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<td>Privatization projects</td>
<td>Environmental audit, hazard/risk assessment</td>
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<tr>
<td>Financial intermediary loans</td>
<td>EIA, environmental audit, hazard/risk assessment, checklists, screening and review criteria</td>
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<tr>
<td>Social investment funds</td>
<td>EIA, checklists, screening and review criteria</td>
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Projects are classified into Category A if they are “likely to have significant adverse impacts that are sensitive, diverse, or unprecedented, or that affect an area broader than the sites or facilities subject to physical works.” The impacts of Category B projects are “site-specific in nature and do not significantly affect human populations or alter environmentally important areas, including wetlands, native forests, grasslands, and other major natural habitats. Few if any of the impacts are irreversible, and in most cases mitigatory measures can be designed more readily than for Category A projects.” In order for a project to classified into Category C, it must be considered likely to have no adverse impacts at all, or the impacts would be negligible. In practice, the significance of impacts, and the selection of screening category accordingly, depends on the type and scale of the project, the location and sensitivity of environmental issues, and the nature and magnitude of the potential impacts. These dimensions are discussed below.

Category A. In general, certain types of projects such as those listed in box 2, are likely to have adverse impacts of a Category A nature. Category A includes projects which have one or more of the following attributes that make the potential impacts “significant”: direct pollutant discharges that are large enough to cause degradation of air, water or soil; large-scale physical disturbance of the site and/or surroundings; extraction, consumption, or conversion of substantial amounts of forest and other natural resources; measurable modification of hydrologic cycle; hazardous materials in more than incidental quantities; and involuntary displacement of people and other significant social disturbances.

Category B. Projects in Category B often differ from A projects of the same type only in scale (see box 3). Large irrigation and drainage projects are usually Category A; however, small-scale projects of the same type may fall into Category B. Similarly, a 50-meter hydroelectric dam is clearly large in scale and will usually require Category A classification, while low-head power dams may be Category B. Construction of a 50-km expressway would also require Category A due to scale, while rural road rehabilitation will tend to raise only minor environmental issues (Category B).

Projects entailing rehabilitation, maintenance or upgrading rather than new construction will usually be in Category B. A project with any of these characteristics may have impacts, but they are less likely to be “significant”. However, each case must be judged on its own merits. Many rehabilitation, maintenance and upgrading projects—as well as privatization projects—may require attention to existing environmental problems at the site rather than potential new impacts. Therefore, an environmental audit may be more useful than an impact assessment in fulfilling the EA needs for such projects (see Update no. 11: Environmental Auditing).

Category C. Typical Category C projects are listed in box 4. However, before classifying a project in this category it is important to consider potential issues, some of which may not immediately spring to mind. For example, disposal of medical wastes may be an issue in many health projects. Likewise, while most technical assistance (TA) projects should fall into Category C since
### Box 2. Category A projects

The projects or components included in this list are likely to have adverse impacts that normally warrant classification in Category A:

- Aquaculture and mariculture (large-scale)
- Dams and reservoirs
- Forestry production projects
- Hazardous waste management and disposal
- Industrial plants (large-scale) and industrial estates, including major expansion, rehabilitation, or modification
- Irrigation, drainage, and flood control (large-scale)
- Land clearance and leveling
- Manufacture, transportation, and use of pesticides or other hazardous and/or toxic materials
- Mineral development (including oil and gas)
- New construction or major upgrading of highways or rural roads
- Port and harbor development
- Reclamation and new land development
- Resettlement
- River basin development
- Thermal power and hydropower development or expansion
- Water supply and wastewater collection, treatment and disposal projects (large-scale)

They involve no physical works, certain TA operations are designed to pave the way for major investments or privatization (often in a particular sector). In such cases, it is appropriate to undertake a limited review of the environmental institutional and regulatory framework for the sector and recommend improvements (as needed). Category B is normally the correct classification for such projects.

### Project location

The selection of a screening category often depends substantially on the project setting, while the “significance” of potential impacts is partly a function of the natural and sociocultural surroundings. There are a number of locations which should cause the TM to seriously consider an “A” classification:

- In or near sensitive and valuable ecosystems — wetlands, wildlands, coral reefs and habitat of endangered species;
- In or near areas with archaeological and/or historical sites or existing cultural and social institutions;
- In densely populated areas, where resettlement may be required or potential pollution impacts and other disturbances may significantly affect communities;
- In regions subject to heavy development activities or where there are conflicts in natural resource allocation;
- Experience to date shows that precise identification of the project’s geographical setting at the screening stage greatly enhances the quality of the screening decision and helps focus the EA on the important environmental issues. A map of the project area that includes key environmental features (including cultural heritage sites) is invaluable for this purpose. Information on the project setting may be available to the TM from the RED, from colleagues in country departments, or in-country environmental profiles or Bank reports on other projects in the vicinity. Local institutions and NGOs are also valuable sources. In the absence of any such information, the TM should consider sending a reconnaissance mission to provide the basis for proper screening. Often a product of this mission is a draft of the Terms of Reference (TOR) for the EA.

### Sensitivity of issues

Environmental issues that are sensitive within the Bank or the borrowing country require special attention during the EA process. The project may involve activities or environmental features that are always of particular concern to the Bank as well as to many borrowers. These issues may include (but are not limited to) disturbance of tropical forests, conversion of wetlands, potential adverse effects on protected areas or sites, encroachment on lands or rights of indigenous peoples or other vulnerable minorities, involuntary resettlement, impacts on international waterways and other transboundary issues, and toxic waste disposal. The best way to ensure proper treatment of such issues is to classify the project as Category A, so
Box 4. Category C projects

These projects are likely to have negligible or no environmental impacts. EA is normally not required.

- Education
- Family planning
- Health
- Institution development
- Most human resources projects
- Nutrition

Nature of impacts

It is difficult to describe the nature of impacts without having some overlap with the concepts of sensitivity and project type. The TM should take into consideration the following examples of impacts that warrant Category A attention:

- Irreversible destruction or degradation of natural habitat and loss of biodiversity or environmental services provided by a natural system;
- Risk to human health or safety (for example, from generation, storage or disposal of hazardous wastes, or violation of ambient air quality standards); and
- Absence of effective mitigatory or compensatory measures.

Magnitude of impacts

There are a number of ways in which magnitude can be measured, such as the absolute amount of a resource or ecosystem affected, the amount affected relative to the existing stock of the resource or ecosystem, the intensity of the impact and its timing and duration. In addition, the probability of occurrence for a specific impact and the cumulative impact of the proposed action and other planned or ongoing actions may need to be considered.

For example, the resettlement of 5,000 families is a large impact, in absolute terms. Conversion of 50 hectares of wetland, however, differs markedly in significance depending on its size relative to the total area of wetlands in the country or region. An average decrease in dissolved oxygen concentration of 0.05 mg/l in a receiving water is unlikely to have serious biological or chemical implications, while a decrease of 3.0 mg/l will in many circumstances. The effect of either decrease on the aquatic ecosystem will be different depending on its duration and frequency of occurrence—continuous or permanent, seasonal, intermittent or accidental. Where it is possible to assign probabilities to potential impacts, which often cannot be done without detailed analysis, the risk of occurrence becomes an aspect of magnitude.

One of the requirements of a full EA is that other current and proposed development activities within the project area and more spontaneous activities spurred by a project (such as migration of people into an area opened up by a road project) must be taken into account. Such cumulative or induced impact may sometimes be the primary determinant of the appropriate level of EA.

Screening of operations with multiple subprojects

Financial intermediary, sector investment, and social investment fund operations present unique problems during screening because the details of the subloans or subprojects are usually not known at the time of project identification. One of the TM’s responsibilities is to see that the loan includes a mechanism for conducting environmental screening of subprojects and, as appropriate, carrying out and reviewing EAs. However, the entire loan must also be assigned to a category for the purpose of preparation and appraisal. If it becomes evident that one or more subprojects will require full EA, the entire loan should be classified as Category A (see Chapter 6 of Volume I, Environmental Assessment Sourcebook). When screening a sector investment loan, the need and opportunity for undertaking a sectoral EA should be considered (see Update no. 4: Sectoral Environmental Assessment). Future Updates will discuss EA for financial intermediary lending and social investment funds in more detail.

Outputs of screening

The screening results are recorded and explained in the Project Concept Document and the Environmental Data Sheet. The Monthly Operational Summary also records the screening decision. The Bank reviews the results with the borrower, especially with regard to the type of EA instruments required, the general scope of the EA, public disclosure and consultation requirements, schedule, and implementation arrangements. As soon as possible after screening, the borrower should prepare the Terms of Reference (TORs) for any EA required. The Bank assists as necessary in preparing the TORs and always reviews their contents.
Geographic Information Systems for Environmental Assessment and Review

Sustainable development and management of natural and economic resources depend on the ability to assess complex relationships between a variety of economic, environmental and social factors across space and time. Limited capacity and experience in gathering and managing data along these dimensions frequently inhibit the quality of environmental and developmental planning. As a result, information management is currently receiving growing attention. Geographic Information Systems (GIS) have emerged as a particularly promising approach in this regard, enabling users to collect, store and analyze information that has been referenced to its geographic location.

This EA Sourcebook Update offers an overview of what GIS is and presents how it may be applied in environmental assessment (EA). Since GIS was not discussed in the Sourcebook, the Update does not replace any existing material.

What is GIS?
In the broadest terms, GIS is a systematically designed, spatially indexed approach for organizing information about places or regions in order to facilitate analysis of relationships between different social, economic and environmental variables. For example, a set of maps or overlays of a given area, with different levels of resolution and types of data—topography, hydrology, land use patterns, demography, planimetric features and so forth (see figure 1)—is one type of GIS that does not necessarily require complex computerized data systems. At the other end of the spectrum is a more technology-based application of GIS, as reflected in the following definition by the U.S. Federal Interagency Committee on Digital Cartography (A Summary of GIS Activities in the Federal Government, 1988): “[a] system of computer hardware, software, and procedures designed to support the capture, management, manipulation, analysis, ... and display of spatially referenced data for solving complex planning and management problems.”

Advantages of GIS
Most situations that would benefit from GIS capability can be categorized as long term or short term. The long-term category is where economic and environmental management on a national, regional or local level is called for—in other words, institutional or programmatic applications. The short-term category usually involves specific project situations, for example EA work. The basic equipment, software and human resource skills required may be similar for both categories, but the design, implementation and operation implications may be different. In some instances, what starts as a project-specific application may evolve into a permanent program.

GIS may be particularly useful in cross-sectoral and regional development, for example, in coastal zones, watersheds, large urban or metropolitan areas, or multipurpose development schemes within a given administrative region. Determining a region’s vulnerability to soil erosion, for instance, requires the consideration of such factors as soil structure and chemistry, seasonal fluctuations in rainfall volume and intensity, geomorphology, and the type of land management regime in place. Assessing the feasibility of a soil conservation program in an area requires further information on the economic status of inhabitants, the types of crops grown, and the responsiveness to incentives for soil conservation. Then, select-
of basic characteristics for such a system can be identified. These include the following features or capabilities:

- Description of the condition and geographic distribution of natural resources and areas of concern;
- Identification of the nature, sources, magnitude, and location of environmental stress present in an ecosystem or reporting unit;
- Description of an ecosystem’s current and potential level of exposure to a given stress;
- Assessment of the actual response of an ecosystem to existing or potential stressors; and
- Assistance in the evaluation of the risk posed as a result of that exposure (that is, the probability that an impact of a given magnitude will occur).

The GIS approach may thus be useful in EA requirements such as collecting and systemizing baseline data, estimating impacts (particularly cumulative impacts), and managing data during monitoring. GIS can also be a powerful tool to identify and analyze project alternatives in terms of geographic location, overall design and technology choices. All of these applications are important components of EA under OD 4.01.

GIS as a tool for supporting resource inventories and baseline surveys

The EA Operational Directive states that baseline data in a project-specific EA Report should contain an “assessment of the dimensions of the study area and description of relevant physical, biological, and socio-economic conditions.” (Annex B of OD 4.01, para 2). GIS was developed precisely to gather, manage and use such information in a spatially indexed fashion; and using GIS to collect and analyze baseline data may not only reduce costs and time but also enhance overall EA quality as well, especially in countries where GIS capacity is already present. In countries where GIS has not yet taken root, introducing a package for a specific project or a full-scale national resource information management program—in the form of a set of appropriate technologies, institutional arrangements and training—may reap the same qualitative benefits, at low to moderate additional cost (see box 1).

One field where GIS frequently has been used as a tool for building inventories of natural resources and baseline environmental conditions is land resource management. In the forestry sector, for example, satellite remote sensing has been applied to document the composition and distribution of vegetation types, classify ecological system types, identify marketable timber species and volumes, perform agro-ecological zoning, detect vegetative stress (for example, rates of deforestation), monitor pest infestation, and predict fire hazards. However, while satellite imagery has proven effective for broad forest reconnaissance surveys, it has generally not been helpful for detailed assessments.

Aerial photographic techniques combined with terrestrial (ground) surveys have proven extremely effective in
cost of erosion to the local economy in Java, Indonesia. Box 1 provides an example from the Philippines, where GIS was used to produce and analyze baseline data.

GIS can also be used for generating and managing baseline data in an urban environmental planning context, as box 2 illustrates.

**GIS for impact assessment and analysis of alternatives**

GIS modeling techniques allow complex interrelationships to be evaluated within comprehensive spatially referenced databases. Techniques such as network analysis, proximity buffering and digital terrain modeling are routinely applied in engineering and environmental applications throughout North America and Europe, and are beginning to be used in developing countries as well.

Through the services GIS can provide in impact assessment, the identification and analysis of design and site alternatives can be enhanced. By offering a single and consistent framework for impact analysis across space and time, GIS promotes objective analysis of alternatives and provides decisionmakers with better information about their options. Once a decision is made, the information already generated will be useful in designing mitigative measures. Risk assessment applications such as hazard identification, risk characterization, and risk minimization planning are other examples where GIS has been effective.

**GIS for environmental monitoring**

The use of GIS for environmental monitoring during project implementation and thereafter should be considered early on during project preparation. If GIS has already been used for baseline surveying and impact assessment, applying

supporting engineering feasibility studies, optimal routing analysis, and impact prediction for roads, hydroelectric facilities, pipelines, and other major infrastructure. In particular, the science of aerial photogrammetry (making maps on the basis of aerial photography) and photo interpretation from large-scale stereo-photos allows detailed computations of topography, drainage characteristics, land cover, erosion hazards, and so forth. Forest management specialists are now developing ways to link traditional forest planning and timber management techniques (such as linear programming and forest stand growth modeling) with GIS and artificial intelligence to achieve habitat protection objectives.

A recent study in China used GIS to assess the agricultural potential of soils in different areas, by combining data on soil characteristics with other local site factors. The World Bank has used GIS technology to integrate physical models of soil erosion potential with models of soil conservation costs in order to assess the approximate
established a central node, managed by FEPA, to ensure environmental monitoring program based on GIS, rather than a case-by-case approach (see box 3).

The project’s support to the environmental information system included technical assistance, training, provision of equipment and services, and financing of recurrent costs on a declining basis. Four sectoral information nodes were established: (a) vegetation and land use, managed by the Forest Department; (b) soils and lands, managed by the Department of Land Resources; (c) water quality and quantity, managed by the Ministry of Water Resources; and (d) air quality, managed by FEPA. In addition, the project established a central node, managed by FEPA, to ensure information flow between the sector entities.

The system has provided key data to a number of studies. For example, the recently completed study of land use and vegetation changes between 1978 and 1995 (based in large part on the vegetation and land use node) provided precise information about the consequences of population pressure and unsustainable land use practices in different regions of the country. Large areas of the country are experiencing land degradation due to extensification of agriculture and removal of trees and shrubs for fuelwood. In the southern coastal areas, removal of mangrove vegetation and urbanization are causing increasing salt water intrusion and disappearance of marshes and tidal flats. In the north, once stable sandy areas are subject to increasing problems of desertification and soil erosion. The results of this study were presented at a national workshop to agree on a strategy, based on current and reliable quantitative information, to overcome these problems and mitigate the damages.

Upon completion of the other nodes and associated studies (water, land and air) it will be possible to produce digital overlays and combine them with a socio-economic layer to study relationships between environmental and socio-economic trends, the impact of policies on environmental quality, and the cumulative effects of environmental changes across media (vegetation, land, water and air).

Since its establishment, the information system has allowed large quantities of environmental and resource information to be collected in compatible spatial and temporal formats to fit into an integrated GIS network. The data is being freely exchanged between agencies for environmental and natural resource management.

Box 3. National information system for environmental monitoring in Nigeria

Building on the strategy paper “Towards the Development of an Environmental Action Plan for Nigeria - 1990” (prepared jointly by the World Bank and the Federal Government of Nigeria), an Environment Management Project (EMP) was approved on September 1991. The project aimed at strengthening Nigerian environmental institutions (particularly the Federal Environment Protection Agency - FEPA) and helping them implement their programs; establishing a national environmental information system, based in large part on GIS, to monitor environmental change over time; and conducting a complete series of sector investigations and studies to redress environmental degradation.

When monitoring environmental impacts during and after project completion, databases with multiple attributes—often dynamic in nature—must be integrated. GIS can help structure and integrate this diverse information ranging from water quality to soil productivity to habitat data. Specific GIS technologies that are useful in monitoring include remote sensing, which can be applied to monitor for example sewage disposal sites, effluent discharges and coastal wetlands for example. The use of aerial photography is still the preferred technology to date, but satellite-based imaging systems are gaining ground as spatial resolution increases.

One clear advantage of GIS in monitoring is flexibility, which allows specialists to create a wide range of reports, maps and statistical summaries suitable for public briefings as well as technical analysis. GIS may thus help increase transparency and broaden the scope of public participation in project implementation.

For further reading

Several publications are available that provide more in-depth information on GIS. The following documents are recommended for further reading:


This Update was prepared by Hassan Hassan and Olav Kjorven. The EA Sourcebook Updates provide up-to-date guidance for conducting EAs of proposed projects and should be used as a supplement to the Environmental Assessment Sourcebook. The Bank is thankful to the Government of Norway for financing the production of the Updates. Please address comments and inquiries to Olav Kjorven and Aidan Davy, Managing Editors, EA Sourcebook Update, ENVLW, The World Bank, 1818 H St. NW, Washington, D.C., 20433, Room No. S-5139, (202) 473-1297. E-mail: eaupdates@worldbank.org.
Sectoral Environmental Assessment

Sectoral environmental assessment (SEA) is a much needed complement to project-specific EAs in development planning. Where project EAs focus on the impacts of specific investments and often treat sector strategic planning as a given, SEA offers an opportunity for sector-wide environmental analysis before investment priorities have been determined. It also supports integration of environmental concerns into long-term development and investment planning. SEA is most commonly applied in the context of sector investment programs involving multiple sub-projects. It can also be applied in conjunction with sector-oriented time-slice and line-of-credit projects, and even with sector adjustment operations or in evaluation of sector policies.

This EA Sourcebook Update, which belongs to Chapter 1: The Environmental Review Process (Update Binder), describes SEA in terms of advantages, operational context, selection criteria, and components. It also discusses what some of the challenges associated with SEA preparation are, and how SEA is being used in Bank operations. This Update expands on existing information in Chapter 1 (pp. 14-17) of the EA Sourcebook.

Background

World Bank guidance on sectoral EA was introduced in 1989 with the adoption of Operational Directive (OD) 4.00, Annex A: Environmental Assessment (amended in 1991 as OD 4.01). The Environmental Assessment Sourcebook (1991) provided more detailed advice that has helped the Bank and its borrowers to introduce SEA in project preparation, despite the lack of a tested methodology. On the basis of this accumulated experience, it is now possible to expand Bank guidance on SEA.

SEA avoids the inherent limitations of project-specific EAs in addressing issues related to policy and planning and the legal and institutional framework. By moving upstream in the planning process to a stage where major strategic decisions have not yet been made, SEA offers better opportunities not only for analyzing existing policies, institutions, and development plans in terms of environmental issues, but also for supporting environmentally sound sector-wide investment strategies. A SEA may, for example, allow for a more realistic environmental assessment of competing investment alternatives in the power sector, where one option might favor massive coal thermal and hydro-electric expansion; a second option, nuclear and hydro-electric power; and a third, a combination of coal and gas thermal power coupled with demand-side management and development of renewable biomass energy. Similarly, where project-specific EA would analyze the impacts on ambient air quality around a new industrial estate, the sectoral EA might look at the cumulative effects of acid rain or other problems resulting from proposed industrial developments in terms of their regional, national or even trans-national impacts.

The Bank’s increasing use of programmatic, sector-oriented loans and time-slice investment programs has served to build demand for a sectoral EA approach, and has provided the best opportunities for developing SEA as a planning tool. An example of this approach is presented in Box 1. In other cases, sectoral EA may be the only EA output if the sub-projects do not require EAs individually. Environmental planning measures and/or guidelines developed by the SEA may then be applied (see Box 2 for a list of Bank-financed projects with a SEA component).

Advantages of Sectoral EAs

The growing Bank experience with SEAs has revealed several important benefits to be gained from use of this instrument in development planning (see Boxes 1 and 3–6). The following advantages are worth highlighting:
Box 1. State of Orissa, India: Water Resources Consolidation Project

India has begun increasing irrigation capacity through more efficient operation and maintenance of existing facilities, rather than through construction and development. A series of Water Resources Consolidation projects (WRCP) currently being planned by four State Governments and supported by the Bank will facilitate this change of direction. A sectoral EA approach is being adopted for these projects because: (1) they are substantially programmatic and not all activities will be fully defined at appraisal; (2) the main environmental issues concern monitoring and management rather than impacts from new construction projects; and (3) environmental considerations related mainly to water quality and quantity are becoming increasingly important in all these states. The governments need improved technical advice on how to cope with these challenges on the institutional and policy level.

The first of these projects was Orissa WRCP, and preparation of the SEA was divided into two phases. Phase 1, currently in progress, focuses heavily on the institutional and legal framework for the water sector and includes the following objectives and tasks:

- to assist in establishing an Environmental Group within the Orissa Irrigation Department’s Central Planning Unit;
- to review the status of environmental legislation and its applicability to the water resource sector in general, and to proposed projects in particular;
- to provide guidelines for the approach to and the preparation of required Site Clearance and Environmental Clearance documents for various types of irrigation projects (such as dams, irrigation development, river basin plans, major drainage and flood protection works, and rehabilitation of major irrigation schemes);
- to provide initial training for the water resource sector and other related government staff in EA procedures, techniques and analyses;
- to establish the organization, staffing levels, responsibilities, operating procedures and budgeting for a proposed environmental sector unit;
- to prepare a comprehensive training and institutional strengthening program, including 2-3 case study EAs for representative projects; and
- to delineate procedures for interagency liaison and internal department clearances for water resource project EAs with departments such as Environment, Forests, and Health Service.

The total cost of the Phase 1 program was estimated at US $446,700, with staff requirements estimated at 34.5 person months.

Phase 2 will be based on findings and recommendations of the first phase. It would probably include such components as preparation and completion of the case studies, long-term training in EA, preparation of monitoring plans for the irrigation sector, and upgrade of the environmental monitoring facilities.

- Sectoral EAs can prevent serious environmental impacts through analysis of sector policies and investment strategies upstream in the planning process, before major decisions are made.
- They can assist governments in forming a long-term view of the sector and can increase the transparency of the sectoral planning process (that is, show the reasoning behind development plans), thereby decreasing the opportunities for purely political decisions that might be environmentally harmful.
- They are suitable for analysis of institutional, legal and regulatory aspects related to the sector, and for making comprehensive and realistic recommendations regarding, for example, environmental standards, guidelines, law enforcement, and training, thus reducing the need for similar analysis in downstream EA work.
- They provide opportunities for consideration of alternative policies, plans, strategies or project types, taking into account their costs and benefits, particularly the environmental and social costs that are often ignored in least-cost project planning.
- SEAs help to alter or eliminate environmentally unsound investment alternatives at an early stage, thus reducing overall negative environmental impacts, while also eliminating the need for project-specific EA of these alternatives (see Figure 1).
- They are well-suited to consider cumulative impacts of multiple ongoing and planned investments within a sector, as well as impacts from existing policies and policy changes.
- They are valuable for collecting and organizing environmental data into information and, in the process, identifying data gaps and needs at an early stage, and for outlining methods, schedules and responsibilities for data collection and management during program or project implementation.
- They allow for comprehensive planning of general sector-wide mitigation, management, and monitoring measures, and for identifying broad institutional, resource and technological needs at an early stage.
Box 2. Bank-financed Projects with Sectoral EA Components

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<tr>
<th>Sector</th>
<th>Country</th>
<th>Project</th>
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<tbody>
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<td>Transport</td>
<td>Nigeria</td>
<td>Nigerian Multi-State Roads</td>
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<td></td>
<td>Colombia</td>
<td>Colombia Highways</td>
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<td>China</td>
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<td>China</td>
<td>Guangdong Provincial Highway</td>
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<td>Indonesia</td>
<td>Eastern Indonesia Kabupaten Roads</td>
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<td>Agriculture</td>
<td>Chile</td>
<td>Irrigation Development</td>
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<td>Pakistan</td>
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<td></td>
<td>China</td>
<td>Guangdong Agriculture Development</td>
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<td></td>
<td>Morocco</td>
<td>Large-Scale Irrigation II</td>
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<td>Water/Sanitation/Urban</td>
<td>China</td>
<td>Rural Water Supply and Sanitation</td>
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<td></td>
<td>Brazil</td>
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<td></td>
<td>India</td>
<td>Water Resources Consolidation</td>
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<td></td>
<td>Mexico</td>
<td>Solid Waste Management II</td>
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<td></td>
<td>Mexico</td>
<td>Northern Border Environment</td>
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<tr>
<td>Energy/Power</td>
<td>Poland</td>
<td>Gas Development</td>
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<td>El Salvador</td>
<td>Power Sector</td>
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<td>Industry</td>
<td>Bolivia</td>
<td>Environment, Industry and Mining</td>
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</table>

- They provide a basis for collaboration and coordination across sectors, and help to avoid duplication of efforts and policy contradictions between sector agencies and ministries.

- They may strengthen preparation and implementation of sub-projects by recommending criteria for environmental analysis and review, and standards and guidelines for project implementation.

The Operational Context

Three broad operational contexts, or situations, may trigger SEA work. The need to interpret OD 4.01 varies according to these contexts.

The first type of situation is a category A or B investment program or a series of independent A and/or B projects in a given sector. In these cases, the process and timing and the scope of the SEAs should follow the requirements of OD 4.01. For B projects a limited sectoral environmental analysis would normally be the appropriate form of SEA. Types of projects in this first context may include:

- a national or sub-national sector program;
- a series of projects in the same sector;
- a large project with sectoral implications;
- a sectoral intermediate credit operation; or
- a sectoral time-slice investment operation.

The second context is in projects and programs where a SEA is prepared to complement the planning process. These SEAs may be triggered by Bank environmental screening of a project; but they cover a broader set of issues than merely the impact of the project, and they proceed in parallel with the required project EA work. This SEA approach may, for example, be appropriate in sectors with widespread and well-known environmental damage although the project supported by the Bank may not create any significant additional problems. The Bank might help secure funding for such SEA work, but OD 4.01 does not directly apply (and subsequently the SEA does not have to be completed prior to appraisal). Box 6 provides an example of a SEA prepared in this context.

The third context is when sectoral environmental analysis is employed without any direct link to lending activities. In this case, the SEA is typically related to Bank economic and sector analysis for a country. OD 4.01 does not apply, and no particular procedures need to be followed although this Update may provide valuable information.

Criteria for Choosing SEA

The following questions will help identify where a sectoral EA approach may be particularly appropriate and useful in a project or program where OD 4.01 applies. If the answer to the following question is positive, SEA should be seriously considered:

- Is the Bank considering any of the investment types listed in the section on Operational Context (above), in a sector with significant environmental issues?

If the answer to the next three questions is also positive, SEA is highly recommended:

- Are there major existing environmental problems associated with the sector, and/or sector-wide potential environmental impacts resulting from the proposed program or series of projects?
• Is there a clear potential for significant environmental improvement or avoidance of major problems in the sector?

• Are there clear policy, regulatory and/or institutional weaknesses relative to environmental management in the sector?

In addition, there are conditions that increase the potential value of SEAs but are not sufficient or completely necessary requirements:

• Is the borrower at an early planning stage or at a new major investment phase, where important strategic decisions have not yet been made?

• Are conditions in the sector relatively stable and predictable (rather than tending to rapid and unpredictable change), so as to allow for a medium to long-term planning horizon and therefore better chance of gaining long-term value from the SEA?

• Is the borrower willing to pay for the SEA and likely to give weight to the findings and recommendations?

Sections of a Sectoral EA Report

SEAs will vary in scope and content according to the types and significance of issues and the operational context. A general outline for a full (category A) SEA can be constructed, however, using the guidance provided in OD 4.01, Annex B, for a full project-specific EA (see also Box 5 for a sector-specific example).

**Executive Summary.** As in a project-specific EA, a SEA should contain an executive summary (in English), with a concise discussion of significant findings and recommended actions.

**Policy, Legal and Administrative Framework.** This section is one of the most important parts of a sectoral EA. It is helpful to analyze both (1) the national environmental legal, regulatory and institutional framework, and (2) sector-specific policies, regulations and institutions (see Box 3). If other, recent studies have already analyzed these dimensions in an adequate way, the SEA should draw on this work rather than duplicate it.

• The national framework. The relevant national environmental policies, laws and regulations should be assessed for completeness and appropriateness in light of the particular conditions and problems of the sector, and gaps and weaknesses noted. Non-environmental laws and policies that have significance for the sector’s utilization of resources, production processes, or pollution should also be identified. Similarly, the national regulatory framework for EA preparation and review should be assessed. The SEA should look closely at the institutional capacity of the main environmental ministry or agency, in terms of effectiveness and capacity for providing guidelines, setting and enforcing standards, and reviewing environmental assessments. The capacity and performance of agencies responsible for specific environmental services such as nature protection and cultural heritage should also be reviewed when relevant.

• The sector framework. The SEA should analyze sector-specific policies, laws and regulations that have environmental implications. It should also identify how environmental responsibilities are distributed among (public or private) sector institutions and assess their capacity to administer these tasks. The sectoral investment planning process, in terms of objectives, methodology and procedures for review and approval of plans and projects, should be carefully reviewed. The relationship between timing of project review, issuance of licenses and permits, and the sectoral planning process should be clearly indicated. The SEA should assess whether environmental and social issues are adequately covered by current procedures.

**Project Description.** The nature and objectives of the program, plan, series of projects or other context to which the SEA is attached should be described, and the main environmental issues associated with the sector and these programs, identified.

**Baseline Data.** This section should describe and evaluate the current environmental situation in the sector. Where a project-specific EA would describe conditions such as ambient air and water quality or existing impacts from pollution around a proposed project site, the SEA should concentrate on the issues and problems that are typical of the sector as a whole. For example, occupational health may be a concern across enterprises within a specific industry; seepage of heavy metals into streams and groundwater may be a recurring problem in the mining sector; or deforestation may result from activities in the agriculture sector. Another important function of this section is to note major data gaps.

**Environmental Impacts.** The single most difficult challenge in SEAs is to produce a sufficiently precise impact analysis, often in the face of uncertainties related to the final investment decisions and their individual and combined impacts. In recent years, advances have been made in the methodologies for assessing cumulative impacts, in relation to development plans and programs. Means include quantitative modelling, forecasting and various qualitative analyses. If any
Box 3. Bolivia: Sectoral EA for Industry and Mining

The purpose of this EA was to help design the Environment, Industry and Mining Project (EIMP), proposed to begin about mid-1995. A sectoral approach was chosen to strengthen capability in planning new industrial and mining investments and to build institutional capacity for environmental management. The SEA was prepared by a Swedish team and a counterpart group appointed by the National Environmental Secretariat (SENMA).

The EA report included all the components described in OD 4.01—Annex B, with an emphasis on (1) the policy, legal and institutional framework; (2) assessment of impacts from on-going activities and planned investments (covering natural resources and the environment, water, occupational health and safety, social structures, and heavily affected regions); and (3) recommendations for a mitigation plan. There was also a separate chapter on public participation in the EA process, which documented consultations with some 40 governmental and nongovernmental organizations, including several NGOs at the local level.

Policy, Legal and Institutional Framework

The analysis of the cross-sectoral policy, legal and institutional framework was comprehensive and covered the following aspects: (1) organization of the State (branches of government, key ministries and major legal instruments); (2) economic policy; (3) national policies, laws and institutions for the environment; (4) environmental impact assessment requirements; (5) policies and laws for the use of natural resources; (6) environmental management in areas such as water quality; solid waste, pesticides and air pollution; (7) occupational health and safety; and (8) foreign assistance.

Major issues related to the policy, legal and institutional framework included: (1) unclear environmental law about institutional responsibilities, which leads to weak enforcement; (2) almost no environmental laws regarding mining and poor enforcement of the few provisions in place; (3) no regulations specifically for hazardous waste or industrial air emissions; and (4) no effective regulation of industrial water pollution except in a few municipalities.

EA Recommendations

The EA preparers were able to produce a series of concrete recommendations that were directly related to the environmental problems caused by activities in the two sectors. Recommendations for changes fell into three areas: (1) broad policy, legal and institutional changes (e.g., setting goals for ambient environmental quality, implementing new EIA regulation, and improving laboratory capacity); (2) major mitigation activities (e.g., addressing environmental issues in privatization of state-owned mines on the basis of environmental audits, extending sewage systems in Cochabamba, and addressing problems related to alluvial gold mining in the Bolivian Amazon basin); and (3) additional priorities (e.g., encouraging broad public participation, building a coherent national environmental database, and introducing environmental audits, first voluntarily and eventually as a requirement, of industrial and mining facilities).

proposed sub-project is expected to cause particularly significant impacts, the SEA should recommend an appropriate course of action to address them, including carrying out a project-specific EAs (see Box 4).

All cumulative effects should be considered: positive and negative, direct and indirect, long-term and short-term. Aggregate problems such as sewage discharge, acid rain, ozone depletion and deforestation are usually the result of several activities, sometimes stemming predominantly from a single sector. Cumulative impacts on environmentally important and sensitive areas and assets such as coastal zones and wetlands, or freshwater resources, are also important in cases where the sector activities heavily affect these areas and/or resources.

The sectoral EA is an appropriate instrument for considering issues related to long-term sustainable development. Specifically, the SEA may contain a discussion of how a proposed investment program may influence long-term productivity of environmental resources affected by the program.

Analysis of Alternatives. A major purpose of a SEA is to do a thorough analysis of alternative investment options and strategies in terms of environmental costs and benefits. For example, if a proposed agricultural program emphasizes conversion of wetlands to rice production, an alternative approach such as intensification of production in existing fields, conversion of other land types, or crop rotation may be considered.

All major investments under consideration, besides the option being considered by the Bank, should be considered at this stage, whether complementary or alternative to the Bank option. The other options may include investments by the private as well as the public sector.

A comparative analysis of alternative programs is highly recommended, applying indicators of environmental and social impacts and methods to evaluate and compare the indicators and ultimately the alternative options. Where several donors are involved in the sector, the SEA should review their existing and/
Box 4. Procedures for Sectoral EA: Asia Region

Extensive experience with program and time-slice lending in the highway sector, particularly rural areas, has spurred development of informal procedures for sectoral EA in the Bank's Asia region, to ensure consideration of all possible impacts on the environment. According to the informal procedures, a sectoral EA should contain:

- a screening process designed to identify sub-projects having potentially significant issues that would need to be addressed in a sub-project EA;
- a general assessment of the kinds of impacts that might be associated with the different types of rural road sub-projects; and
- a sectoral environmental action plan to eliminate, minimize or mitigate the impacts identified in the sectoral EA, and provide general guidelines for long-term monitoring.

Two categories are used in environmental screening of sub-projects:

- sub-projects that may create a few minor and easily recognizable environmental problems, but no significant ones; and
- sub-projects with potentially adverse impacts on environmentally sensitive areas, defined as zones of significant human habitation; ecologically important areas such as wetlands and primary forests; archeological, historical and cultural sites; and terrain with slope greater than 50%.

The second category of sub-projects requires project-specific EA, while the first category is addressed primarily through the sectoral EA in the form of general impact assessments, sectoral action plans, and codes of engineering practice for environmentally sustainable road development. These codes apply to both categories of sub-projects and cover such issues as construction practices, site selection, resettlement and compensation, and public consultation/participation.

or planned activities and, if necessary, suggest ways to coordinate efforts.

The sectoral EA can also be used to evaluate the environmental effects of sector policy alternatives. For example, changes in tax and subsidy rates on the use of natural resources may greatly influence rates and methods of extraction.

The analysis could conclude with a list of sector proposals, ranked according to environmental preference. The analysis of impacts and alternatives should result in a recommendation for an optimal investment strategy, in terms of environmental and social costs and benefits.

Mitigation Plan. Mitigation measures are usually of a detailed, technical nature, and therefore normally addressed in project-specific EAs. However, if planned or existing production and process technologies in a sector are relatively uniform, the SEA could recommend broad options for eliminating, reducing to acceptable levels, or mitigating environmental impacts. Such solutions could include a complete production system design as well as end-of-pipe clearing technologies. SEA mitigation recommendations should draw on findings from the analysis of policy, legal and institutional issues as well as the analysis of impacts and alternatives.

A SEA is an effective tool for designing and recommending mitigation measures that can be implemented only at the national or sectoral level for regulatory or economic reasons. In an urban transportation program, for example, automobile emission limits could be recommended if the level of emissions were found to supersede acceptable standards for air quality. Similarly, in a sector program involving multiple investments, the SEA may be better placed than project-specific EAs to consider sector-wide mitigation solutions that require economies of scale in order to be cost-effective. Construction of a solid waste recycling plant for an entire country is one such example.

Environmental Management and Training. One of the main outputs of a SEA should be an institutional plan for improving environmental management in the sector, based on findings of the previous sections (see Boxes 1 and 6). The plan might recommend training of existing staff, hiring of additional staff, reorganization of units or agencies, or redefinition of roles and responsibilities. This section might also include recommendations on policy and regulatory instruments for environmental management and enforcement in the sector. A screening process to separate those sub-project needing a project-specific EA from those not requiring further analysis should be designed, if it is not already in place (see Box 4).

Environmental Monitoring Plan. The SEA should provide general guidelines for long-term sector-wide environmental monitoring to ensure adequate implementation of investments. A monitoring plan should use the findings of the baseline data section as a basis to measure progress in mid-term review and final evaluation. The plan should also recommend measures needed to collect and organize missing data.

Public Consultation. Public consultation is an integral part of the EA process, whether a project-specific or sectoral EA is being prepared (see OD 4.01.
Box 5. Technical SEA Guidelines in the Electricity Sector: LAC Region

The Bank’s Latin American and Caribbean (LAC) region has developed technical guidelines for sectoral EAs in the electricity sector, based on its extensive experience in this sector. The guidelines stipulate that a sectoral EA is recommended where project-specific EAs are not appropriate, due to:

- minimal preparation of individual project components at the time of Bank appraisal (e.g., hydropower developments may be at very preliminary stages of planning);
- the nature of the lending operation, such as timeslice operations involving a large number of projects at varying stages of development; and/or,
- the nature and scale of the projects or programs under consideration.

The guidelines describe the principal sections of a SEA for the power sector: (1) description of the current situation of the power sector; (2) review of the country’s environmental institutional framework; (3) review of the power sector’s regulatory framework and planning procedures; (4) analysis of planned and alternative power sector strategies; (5) choice of an optimal investment strategy; (6) review of institutional capacity of power sector agencies; (7) public consultation; and (8) action plan (for mitigation, management and monitoring).

and EA Sourcebook Update No. 5: Public Involvement in Environmental Assessment for more specific guidance). However, since a SEA normally covers an entire sector (in a national or subnational context) and is conducted before concrete investment decisions are made, it may not always be possible to consult representatives of all potentially affected people during preparation of the SEA. Often, it is more feasible and appropriate to carry out consultations with national NGOs (for example, for nature protection), scientific experts, relevant government agencies, and perhaps also industrial and commercial interests. A successfully implemented consultation process will help ensure public support for the final sector program.

Challenges in SEA

Timing and Status

In order for a SEA to reach its full potential as a planning tool, it must be undertaken in concert with the overall investment planning in the sector. In practice, this is sometimes difficult to achieve because Bank-financed projects and programs are often prepared after government sector planning and strategic decision-making. This makes any consideration of strategic alternatives difficult. Early coordination between the planning processes of the borrower and the Bank is the best way to overcome this constraint.

If a SEA is undertaken, its relevance to sector planning should be ensured through preparation of terms of reference (TORs) and coordination between preparers and sector planners. If SEAs over time demonstrate high quality and usefulness as a planning tool, they likely will have growing acceptance.
Costs

A sectoral EA is generally more costly to undertake than project-specific EA. For this reason, some borrowers may be reluctant to choose the SEA option unless the SEA can be expected to so improve the quality of sector planning that the need will be reduced for project-specific EA work—and associated costs—downstream.

Appropriate TORs and Consultants

Experience and special skills are required to do adequate SEA work, especially in cumulative impact assessment and in analysis of alternative options and the policy, legal and institutional framework. At the same time, TORs for the EA need to be realistic in their requirements and manageable. TORs should narrow the scope of analysis to issues that are most significant and widespread within the sector, rather than require coverage of all aspects. TOR preparation and EA team selection should also support development of in-country capacity for SEA work.

Adjusting to Circumstances

A sectoral EA approach may be useful even in cases where major sector decisions have already been made. For example, the SEA can be adjusted to the purposes of a time-slice or financial intermediary loan involving numerous sub-projects in which the primary issue is setting up appropriate mechanisms for sub-project screening, review, impact analysis, and monitoring. In these cases, doing a more limited SEA may reduce the amount of EA work needed for individual sub-projects, while facilitating more effective review and monitoring at the sectoral level.

In many developing countries, economic and social changes are often rapid and unpredictable, as are changes in technological opportunities (for example, with regard to pollution abatement). On the other hand, planning time frames tend to be long-term due to difficulties in raising capital and limited absorptive capacity. Because of this tension, a full SEA may not always be the optimal option. An alternative approach, currently used by Kenya in the energy sector and supported by the Bank, is to identify major investment options within the sector, rank them by environmental and social criteria and impacts, and provide a general overview of mitigation requirements for each option. This approach allows for gathering of essential data and can serve as a “preamble” to project-specific EAs where needed.

Ensuring Specificity and Follow-Up

Doing a SEA should not become an excuse for overlooking site-specific environmental issues, even though the emphasis is primarily on issues generic to the sector. The SEA should be employed to identify prevalent problems in the sector as a whole and major site-specific problems, which might subsequently be addressed in project-specific environmental assessment. The SEA should help determine where more EA work is needed downstream.
Public Involvement in Environmental Assessment: Requirements, Opportunities and Issues

The Bank's Operational Directive (OD) 4.01 on Environmental Assessment (EA) requires that affected groups and local NGOs be informed and consulted in a meaningful way as part of EA preparation (para 21). Information disclosure is a prerequisite for meaningful consultation. Proper consultation is a requirement for EA category A projects but is also useful for other projects as it helps (1) improve understanding of the potential impacts of proposed projects; (2) identify alternative sites or designs, and mitigation measures, to improve environmental and social soundness; (3) clarify values and trade-offs associated with these different alternatives; (4) identify contentious issues; (5) establish transparent procedures for carrying out proposed projects; and (6) create accountability and a sense of local ownership during project implementation. Public participation in project preparation, beyond consultation, is not an EA requirement except when a project involves involuntary resettlement or affects indigenous people; but public participation in decision-making strengthens local ownership and accountability.

This EA Sourcebook Update describes information disclosure, consultation and participation requirements in the EA process. The focus is on practical information, from descriptions of categories of affected people and their representatives to innovative techniques to the use of social scientists. The Update replaces the EA Sourcebook's Chapter 7, Community Involvement and the Role of Nongovernmental Organizations in Environmental Review, and can be inserted into Chapter 7 of the Update Binder.

Types of Public Involvement

Public involvement in planning and implementing projects can be brought about through consultation and participation. The key factor that distinguishes consultation from participation is the degree to which those involved are allowed to influence, share or control decision-making. The World Bank requires consultation with affected groups and local NGOs as part of the EA preparation process. Participation is required during project preparation under certain conditions and is generally recommended as part of implementation. Information dissemination is a necessary precondition for consultation and participation. Figure 1 describes these events in relation to the Bank project cycle and EA process.

Information Dissemination

OD 4.01 states that "[in] order for meaningful consultations to take place between the borrower and affected groups and local NGOs, it is necessary that the borrower provide relevant information prior to consultations.

The information should be provided in a timely manner and in a form that is meaningful for, and accessible to, the groups being consulted (para 21)." For the first round of consultations (see Figure 1) the information normally includes a summary of the project description and objectives, and the potential negative impacts from the proposed project.

Once the EA report for a category A project has been prepared, "a summary of its conclusions in a form and language meaningful to the groups being consulted" (para 21) should be disclosed to the consulted parties. According to the same paragraph, "[any] consultation should pay particular attention to those issues most likely to affect the people being consulted. In addition, the borrower should make the EA report available at some public place accessible to affected groups and local NGOs for their review and comment."

In developing countries, an effective information disclosure strategy should not assume that people have the time, willingness, organization and resources to
Figure 1. Public Involvement in Environmental Assessment

The EA process

<table>
<thead>
<tr>
<th>Environmental Screening</th>
<th>Scoping</th>
<th>Draft EA submitted for review and clearance; findings discussed with borrower and worked into project documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank and borrower agree on EA TORs and schedule</td>
<td>Appraisal team discusses remaining issues with Borrower.</td>
<td>Finalization in loan agreements of environmental items, based on EA findings</td>
</tr>
<tr>
<td>Bank and borrower agree on EA TORs and schedule</td>
<td>Finalization in loan agreements of environmental items, based on EA and loan agreements.</td>
<td>Environmental supervision based on EA and loan agreements.</td>
</tr>
<tr>
<td>Finalization in loan agreements of environmental items, based on EA and loan agreements.</td>
<td>Evaluation of environmental aspects in completion and evaluation reports.</td>
<td></td>
</tr>
</tbody>
</table>

Project stages

<table>
<thead>
<tr>
<th>Identification</th>
<th>Preparation</th>
<th>Appraisal</th>
<th>Negotiation/Approval</th>
<th>Implementation</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank and Borrower discuss extent and mode of disclosure, consultation and— as appropriate— participation. Identification of affected groups and local NGOs and meaningful ways to disseminate information.</td>
<td>Information on project and its potential impacts released.</td>
<td>Main findings of draft EA report made available to affected people and local NGOs.</td>
<td>Appraisal team ensures that concerns are addressed in project design and implementation plans.</td>
<td>Results of consultation and participation reflected—as appropriate—in loan agreements.</td>
<td>Transparency in implementation of EA recommendations and—as appropriate— participation by local NGOs and affected groups.</td>
</tr>
<tr>
<td>Public Consultation.</td>
<td>Consultation about EA report.</td>
<td>Consultation process including views, agreements and participants recorded in final EA report.</td>
<td>Participation plans developed—as appropriate—for implementation and evaluation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cultural heritage inputs

| Bank and Borrower discuss extent and mode of disclosure, consultation and— as appropriate— participation. Identification of affected groups and local NGOs and meaningful ways to disseminate information. | Information on project and its potential impacts released. | Main findings of draft EA report made available to affected people and local NGOs. | Appraisal team ensures that concerns are addressed in project design and implementation plans. | Results of consultation and participation reflected—as appropriate—in loan agreements. | Transparency in implementation of EA recommendations and—as appropriate— participation by local NGOs and affected groups. | Post-hoc evaluation, including reflection of affected peoples’ views about project impacts. |
| Public Consultation. | Consultation about EA report. | Consultation process including views, agreements and participants recorded in final EA report. | Participation plans developed—as appropriate—for implementation and evaluation. | | | |

find EA information and make their views known to relevant authorities. Experience indicates that placing project descriptions and EA reports in public libraries does not reach the vast majority of people. Mass media, including local television, radio, newspapers and leaflets in local languages, are important means to reach those who will be affected. In some cases, particularly in Africa, the Bank has recommended that EA consultants and implementing agencies work through local traditional decision-making institutions and leaders to disseminate information. Information dissemination normally incurs costs, hence decisions need to be made regarding strategy and funding at an early stage. It is recommended that EA reports document these decisions.

Consultation

Consultation involves soliciting people’s views on proposed actions and engaging them in a dialogue. Unlike information dissemination, consultation is characterized by two-way information flow, from project authorities to people, and from people to project authorities. While decision-making authority is retained by governments, interaction with people and eliciting feedback allows affected populations to influence the decision-making process by raising issues that should be considered in scoping; project design; mitigation, monitoring and management plans; and the analysis of alternatives.

OD 4.01 requires consultation with affected groups and local NGOs during at least two stages of the EA process: (1) shortly after the EA category has been assigned, and (2) once a draft EA has been prepared. In projects with major social components, such as those requiring involuntary resettlement, consultation on social issues and on EA should be linked. Increasing use is being made of regional EAs and sectoral EAs, and it is important that the consultative process also be integrated with them (see EA Sourcebook Update No. 4: Sectoral Environmental Assessment).

A review of Bank experience found that while an increasing number of EAs involved consultation with NGOs, consultation with local communities was more limited. Women and the poor were seldom reached except in the case of resettlement and when indigenous peoples were involved. When consultation had taken place, documentation of the process in EA reports was often incomplete. Bank staff reported they felt constrained by lack of in-country legislation, guidance, techniques and capacity for undertaking consultation; however, staff also felt that consultation, when carried
out, improved project design, environmental soundness and social acceptability.

Consultation during EA scoping. Scoping involves consultation to identify key issues and to develop EA Terms of Reference (TORs) (see Box 1). In the past, TORs were typically developed by the relevant government department in consultation with the donor agency. OD 4.01 recommends that other government departments, local NGOs and affected groups participate in the discussions that lead to preparation of TORs for the EA. This usually occurs after a preliminary government inter-agency meeting that determines the parameters of the consultation process. Draft TORs are then disseminated, and follow-up meetings are held to discuss changes and additions to the issues already identified. In many cases, financial resources must be made available to the smaller NGOs and to community representatives to enable their travel to the meetings.

Consultation during EA preparation. Many EAs involve consultation with affected people during the EA process (see Box 2). The most common method of contact with directly affected populations has been through surveys. These have often been undertaken in the context of resettlement or when indigenous peoples would be affected.

Public consultation during EA preparation can help clarify misconceptions and enhance social acceptability. In a sewerage project in Cyprus, consultations helped allay concerns about odors from a treatment plant, and the relationship between the construction of the plant and future roads.

A wide range of people, including national, provincial and local officials, NGOs, private business groups and community people, were consulted in the Berke Hydroelectric Project in Turkey. Each group had different concerns. Local officials raised the issue of their inability to meet the increased demand for public services, and emphasized the importance of a local thermal spring for tourists; local people drew maps of their travel paths and roads, and voiced concerns about which ones would be flooded. The consultations clarified misconceptions regarding the project and its impacts; and also provided the EA consultants with important information for the mitigation plan.

In preparation of the Arun III Hydro-electric Project in Nepal, the largest development project undertaken in that country, over 35 different organizations (international, national and local), as well as local businessmen, traders, foresters, bankers and women were consulted. Workshops were held at the district and local

Box 1. Malawi: Consultation at Scoping

The Malawi Power V project conducted a two-day scoping seminar involving government officials, NGO representatives and technical specialists to present the aims and activities of the proposed project. The participants were divided into three groups to discuss the main issues: terrestrial, aquatic and social. Each group listed and ranked the positive and negative impacts of the proposed project activities, and then returned to the plenary session to set priorities together for the most important activities and impacts. This discussion provided focus for preparing the EA TORs by helping to clarify priority areas of concern. It also helped build knowledge and consensus up front on what aspects the EA would address, thus reducing the risk of conflict and of raising issues later in the EA process.

Box 2. Gabon: Local Consultation and Project Modification

Dense tropical forests cover 85% of Gabon's territory, and their high biodiversity includes more than 100 tree species of potential commercial value. Total dense forest cover is estimated at 22 million hectares. The Gabonese Government, with the assistance of the World Bank, has initiated a forestry project to (1) maintain the ecological balance and long-term productive potential of the Gabonese forests; and (2) increase the contribution of the forestry sector to national economic development and public welfare through rational management and conservation of the existing forest resources.

To attain the above objectives, the project design process was made highly participatory, involving most segments of society and including a three-year attitude survey. Responsibility for designing the project was placed on both key sectoral ministries and on the local institutions, local and foreign environmental NGOs, donors, private sector and village groups in the project area. The local media (press and national radio), seminars, and large public meetings were used to invite and make sure that all interested parties could comment on the project design, visibility, and content. This approach led to (1) a comprehensive identification of environmental and social issues, and (2) internalization of responsibility for the project at all levels of society.

Project design also changed significantly. For example, while poaching control systems are necessary, new wildlife reserves and conservation areas are to be created as a counterweight measure. This will be done in close collaboration with local NGOs and the World Wildlife Fund. Another result of the consultations is extension courses on natural resource management for local people.
level. The consultation process was recorded using video film and written documents. Consultations resulted in (1) changes in the location of the access road; (2) proposals for community-based forestry user groups that would safeguard the valuable timber resources of the area; and (3) agricultural extension programs to assist villagers in capitalizing on livestock production opportunities provided by better access to markets.

Consultation about draft EA report. Consultation on the draft EA report for category A projects is mandated by OD 4.01 and is one of the most important elements of the EA process.

Those consulted should be allowed sufficient time to review and prepare comments on the draft EA conclusions before consultation takes place. A combination of seminars, simply written materials, visual representation, videos and scale-models are useful to decode the technical language of EAs and make them understandable to non-specialists.

So far, NGOs and specialists have been involved more often than local communities at this stage. In Latin America and the Middle East, consultation is typically conducted through public hearings; in Africa, it is more likely to be through mass media, particularly radio and the press. For example, radio has been used to engage traditional community leaders in consultations, thus ensuring at the same time that a large number of their communities were reached. The findings from these consultations can lay the groundwork for the participation plans that would involve affected groups and NGOs in further project preparation and implementation (e.g., monitoring).

Participation

Participation is a voluntary process in which people, including marginal groups (poor, women, indigenous, ethnic minorities), come together with project authorities to share, negotiate and control the decision-making process in project design and management. The process invites a greater degree of involvement in decision-making by affected people than consultation; but like consultation, it is based on two-way flow of information and ideas. To establish and sustain the process as long as needed usually calls for social science expertise, outreach personnel and resources.

The Bank requires the participation by affected people in project preparation when the project affects indigenous people (OD 4.20) or involves involuntary resettlement (OD 4.30) (see Box 3). While OD 4.01 does not mandate participation, experience worldwide demonstrates the importance of participation in establishing local ownership and achieving positive developmental impact. EAs are therefore gradually moving toward increased involvement of local people, with some including representatives of affected people directly in the decision-making processes.

Participation in decision-making takes different forms during different stages of the project cycle. Consultation during EA scoping lays the groundwork for participation in project preparation or implementation. Participation during project preparation can occur through the development of TORs for the EA, and in conducting the EA. During project implementation, local NGOs or representatives of affected groups may participate in monitoring and in evaluating the measures recommended by the EA (see Box 4). In the case of the Dahanu Thermal Power Project in India, local NGOs will be monitoring atmospheric emissions.
Box 4. Ecuador: Advantages of Consultation and Participation

The Lower Guayas Flood Control Project, which is currently under implementation, provides flood control and drainage for the Lower Guayas Basin. Due in large part to extensive consultations during EA preparation with local NGOs, a national NGO and local scientific expertise, the project design was significantly altered during project preparation, to better safeguard important and sensitive habitats. The consultations produced three distinct results:

1. The project proponent was persuaded to change the alignment of flood evacuation canals, despite higher costs, in order to save an important wetland area from severe disruption;

2. A proposed single large outlet from a new reservoir into a river was changed, in collaboration with the consulted parties, to a multi-outlet design, after the NGOs successfully argued that the outlet would damage mangrove forests in the estuary; and

3. A plan for continued information dissemination, consultation and participation during project implementation was developed, giving local NGOs an important role in monitoring implementation and its impacts on the natural environment.

Who Should Be Involved

Knowing who are the affected groups and relevant NGOs is a vital step in meeting the Bank's consultation requirement. Groups that are directly affected should be involved early in the project cycle and should generally have the most extensive involvement. As the degree of impact diminishes, the frequency of consultation and participation and the duration of involvement may diminish as well.

Directly Affected Groups

One of the most difficult parts of the consultation process is ensuring that the affected groups are identified and adequately included. Directly affected groups include (1) intended beneficiaries of a project, (2) at-risk groups, and (3) stakeholders. They may be in physical proximity to the project or fall within its area of influence. Depending on the type and location of the project, an affected group could be a few hundred indigenous forest dwellers spread out over a vast territory or thousands of people living in one neighborhood of an industrial city. They may be dispersed in several villages and have different ethnic or religious backgrounds, or they may be only the women in a distinct community.

When considering whom to involve in consultations, project proponents must try to predict the project's potential impact on the lives of particular groups. They should evaluate the impacts on each group, according to the (1) scope or extension (both the numbers and the percentage of the total potentially affected population); (2) magnitude or intensity; (3) duration; and (4) reversibility. Because this is sometimes difficult to evaluate during the early stages of project preparation, a flexible approach is desirable so as to allow adjustments to be made, as needed, in the range of groups taking part in the process.

In some situations, affected groups may have difficulty voicing their concerns. For example, ethnic, religious, gender, and racial boundaries may make it difficult for some groups to come forward. Those living in remote areas, such as indigenous peoples, may lack the necessary language skills, information, or knowledge of how to "work the system." The poor and powerless, including urban informal sector workers, may not have any, or adequate, representation. Part of the EA consultation process is to work around these barriers to make contact with affected groups.

Representatives for Affected Groups

There are generally a variety of people and organizations that act as representatives for affected people. These representatives include a wide array of individuals and groups that can provide information and act as advocates and spokesmen for their constituencies, which may be affected groups or interested parties. Examples of such representatives are:

- **Public representatives**, such as state and provincial government representatives, local officials, village councils and other elected leaders;

- **Traditional authorities**, such as village headmen, tribal elders, religious leaders and other clergy;

- **Local organizations** (including NGOs), such as local community development or users' groups, kinship societies, recreational groups, neighborhood associations, labor unions, gender groups, ethnic organizations, cooperatives, etc.; and

- **Private sector representatives**, such as private business interest groups, trade associations, or professional societies.

Cultural and political variations from one project site to another will determine which of the possible representative groups would be the most effective in communicating the views of the affected groups to the borrower. Representative groups can perform numerous roles, such as organizing the means of communication; helping plan and set goals; making resource management more efficient; and reducing the risk of protracted conflict, breakdown of consultations or harm to those involved (if the political or social situation is volatile).
Other Interested Groups

There are a wide variety of other groups that may not be affected by a project, but still have an interest in the project and its impacts. These groups should not be surrogates for local and directly affected groups, but they may have important information and resources at their disposal. Involving them early on can often help identify key concerns and opportunities, but consultation with and participation by these groups should generally be less than with affected groups. These groups may include:

- national or international NGOs, usually concerned with a particular issue (e.g., biodiversity conservation, family planning, technology transfer, energy conservation, agricultural development, human rights, or indigenous peoples);
- universities, research, or training programs, which may have expertise or a general interest in the project, its impacts and development; and
- scientists and experts in a particular field, whose knowledge can contribute to project development.

Elements of Effective Consultation

The success of the consultation process is influenced by the appropriateness of the consultation framework and the enabling environment (see Box 5).

Consultation Framework

Clear agreement on "the rules of the game" at the start of the consultation process encourages respect and trust among the participants. It is therefore useful to establish during scoping, a recognized Consultation (and/or Participation) Framework for the EA process. The Framework will define the what, when, who, where and how of the consultation process. For example, the Framework should clarify what issues should be taken up with the different groups and at which stages of project planning. If the decision to carry out a project has already been made, this should be clearly stated at the onset of the process. The Framework will determine:

- the issues to be addressed and those not under discussion;
- the time framework for the consultation process (duration and times of the year);
- the sampling of participants (whom to include), their legitimacy and representativeness;
- the setting and location for the consultative meetings (e.g., capital cities, rural communities, town halls, market places, or centers for women’s organizations);
- the consultation methods (e.g., mapping, models, interviews, surveys, focus discussion groups, panel discussions); and
- the documentation and dissemination methods, including feedback to those consulted (e.g., through leaflets, meetings, letters, and electronic and print media).

The setting for the consultation process is important and should create respect, familiarity and trust, so that individuals and groups feel free to talk frankly. This includes using interviewers familiar with the local culture and language, holding meetings in community halls rather than bringing people out to central places they may be unfamiliar with, or perhaps holding separate meetings for men and women or for those that are poorer than the rest of the groups.

During identification of participants for the consultation process, the Bank should consider the representativeness of units or persons within the project organization responsible for information dissemination, consultations and, as appropriate, participation. The unit or person(s) should have, or be given, the authority to make firm commitments on issues that bear directly on project design and implementation.

There are many methods available for gathering opinions and engaging people in a dialogue. Since not all of the issues are known prior to data collection, and since people are being asked to anticipate the consequences of something unfamiliar to them, at least some of the methods should be designed to encourage people to respond freely and take the discussion in directions that may not have been anticipated by the researchers.

A flexible approach to project preparation and implementation may be important, particularly in projects that require a high degree of participation. Flexibility does not mean that the projects would be designed and implemented in an ad hoc manner; in-
Box 6. Revised Bank Policy for Disclosure of EA Documents

Under the new policy (1993) for disclosure of information (OP 17.50 and BP 17.50), all EAs of category A projects will be made publicly available at Bank headquarters and in field offices after the borrower government releases them locally, prior to appraisal. For IDA projects, if the government objects to the release of an EA report, the project will not be appraised. For IBRD projects, the Board of Directors will decide whether or not the project will move forward in the event that the government objects.

Environmental analyses of IBRD category B projects will be summarized in the Project Information Documents (PIDs), which are factual descriptions of individual projects under preparation. PIDs will be produced for all projects that reach the IEPS stage prior to initiation of the project preparation phase. The PIDs will be made available at the Bank’s Project Information Center (PIC) and updated as project preparation evolves. If separate environmental documentation is prepared for IBRD category B projects (i.e., not as part of the regular Bank project documents), borrower consent is needed on a case-by-case basis for release.

For IDA category B projects, if the environmental analysis is in a separate report, it will be made available at Bank headquarters (PIC) once it is released locally, prior to appraisal. If the borrower government objects to the release of the environmental analysis, the Country Director will decide whether to move forward with the project. If there is no separate report, the environmental analysis will be summarized in the PID, as for IBRD projects.

The requirement for information disclosure is also important part of the Consultation Framework. In August 1993 the Bank revised its policies and procedures on disclosure of information generally, expanding the range of publicly available documents both locally and from Bank headquarters. Box 6 describes the implications of these revisions for EA work.

The Enabling Environment

Experience to date points to the importance of the following factors in carrying out effective consultation processes:

- adequate resources; and
- social science expertise.

EA legislation. Without such a legislative framework, public participation in EA is often difficult. In Africa, countries that have prepared National Environmental Action Plans have all placed passage of EA legislation high on their policy agendas. Experience suggests however, that well-designed projects can promote effective consultation even in the absence of specific EA legislation.

In the Philippines, environmentally critical projects must prepare an Environmental Impact Statement in order to secure an Environmental Compliance Certificate. It is the responsibility of the agency proposing a project to secure the social acceptability of a project before a compliance certificate is issued. This legislation was found to be particularly useful in the Leyte Geothermal Project, which carried out an intensive information campaign for community officials, community development officers, local universities and private sector groups.

Local capacity. Experience demonstrates the importance of local capacity to carry out consultation and participation. Countries in which effective EAs were conducted had strong national institutions that could take on the management responsibility for the consultative process, which sometimes took 6-12 months. Task managers also found that while international consultants could play a useful advisory role in setting up the process, the key players needed to be in-country. Many task managers felt the need for training, so that they could knowledgeably monitor the consultative processes being proposed and carried out by local agencies. Task managers might consider arranging joint training for their local counterpart agencies and themselves. This would enable them to monitor better and also increase the level of mutual understanding.

Adequate resources. Conducting adequate consultation will incur costs for in-country activities and for the time and travel of task managers and other project staff. The costs will vary, of course, according to the project setting and the chosen methods and intensity of consultation; but in most cases, consultation accounts for a mere fraction of total project preparation costs and a small percentage of EA preparation costs. However, exact figures usually are not available, as most borrowers do not treat consultation as a separate item. In one known case, Malawi Power V (see Box 1), the cost of consultation was approximately US$30,000.

Social science expertise. Experience also suggests the importance of drawing upon social science expertise. The EAs in Bank experience that have been conducted in more participatory ways have included so-
Box 7. Roles for Social Scientists

The skills of social scientists are needed to manage the EA consultation and participation process. There are four primary areas where these skills are most used: (1) identification of participant groups, stakeholders and other social groups in the project's area of influence; (2) design of consultation/participation strategies; (3) design of mechanisms for conflict management and resolution; and (4) institutional analysis.

Identification of relevant groups. The social scientist can serve a vital role in defining the key parameters about who should be consulted, including affected groups and their representatives, and how they should be consulted. Methods for this can include: social surveys, participant observation, mapping, discussion groups interviews with authorities, and socio-cultural profiling.

Consultation/participation planning. Based on detailed knowledge of the project and the affected groups, a social scientist can design a process for consultation and participation throughout the project cycle. Who will be involved? How will their ideas be elicited? What, when, and how will decision-making authority be delegated to them? Tasks may include: defining processes for information flow, including public relations campaigns; analyzing stakeholder concerns; leading a participatory rural appraisal; and planning for and with animators or facilitators.

Conflict management and resolution. The objective is to define traditional mechanisms for making agreements, for negotiations, and for managing conflict in affected communities. Understanding and working within cultural expectations and practices may enhance consultation and participation processes, especially in projects where there are multiple and competing stakeholders or where disputes or conflict are evident.

Institutional analysis. It may be essential to analyze the capacities of and relationships among groups involved in project design and implementation, especially in complex projects with many actors. Such analysis includes: the strengths of organizations; their ability to act as effective representatives of affected communities; and the relationships among groups, such as information flows and decision-making authority. In such projects, recommendations can simplify complex institutional structures and improve coordination.

Issues and Risks

Most of the issues and risks from having consultation and participation in projects can be avoided with sound planning. Perhaps more importantly, the lack of consultation and participation may pose a much greater risk to projects in the long run. Numerous studies of World Bank and other projects confirm that it is possible to include consultation and participation in large-scale projects without incurring substantial delays. Below is a list of the most common risks and how to avoid them.

- Delays and excessive costs ensue when projects have to "backtrack." Developing sound mechanisms to provide information on the project and elicit feedback early in the project cycle can avoid more costly design changes later on. Excessive costs are less likely to result when consultation (and participation) is planned and organized as part of a process.
- Raising anxieties and expectations prematurely may result from insufficient consultation. Unsubstantiated fears that projects may cause adverse impacts and false hopes that projects will bring benefits arise from lack of clear information. The best way to reduce this risk is to provide adequate information early on.
- Politically volatile situations may make consultation and participation more difficult, as people may be less inclined to speak out. Sensitivity and discretion are required where local representatives find themselves at risk when or if taking part in consultation. The safety of consulted parties should always be of utmost concern to the Bank, and the Bank should always ensure that borrowers are fully aware of this concern.
- Capturing of development resources by people they are not intended for can be reduced by checking whether representative and interest groups really do reflect the perspectives of affected groups. International NGOs may not accurately reflect the perceptions of their national counterparts. National NGOs may not accurately reflect local views. Developing a process that consults with each level helps to ensure that benefits are captured to a greater extent by those for whom they are targeted.

EA SOURCEBOOK UPDATE is designed to provide the most up-to-date information on the Bank's policy and procedures for conducting environmental assessments of proposed projects. This publication should be used as a supplement to the Environmental Assessment Sourcebook, which provides guidance on the subjects covered in Operational Directive 4.01. Please address comments and inquiries to Olav Kjerven, Managing Editor, EA Sourcebook Update, ENVLW, The World Bank, 1818 H St., NW, Washington, D.C., 20433, Room No. S-5123, (202) 473-1297.