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Strategic Environmental Assessment in World Bank Operations

Experience to Date — Future Potential

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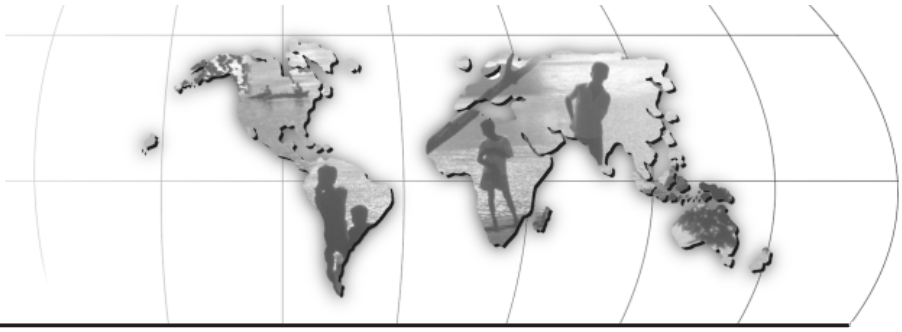
In 2001, the World Bank completed the comprehensive two-year process of preparing its Environment Strategy, *Making Sustainable Commitments: An Environment Strategy for the World Bank*. It was endorsed by the Bank's Board of Directors and published in October 2001. Several background papers were prepared and published by the Bank's Environment Department to stimulate constructive dialogue and intellectual discussion on a range of issues within the Bank as well as with client countries, partners, and other interested stakeholders. The *Environment Strategy Paper* series includes revised versions of Environment Strategy background papers, as well as new reports prepared to facilitate implementation of the Strategy. This series aims to provide a forum for discussion on a range of issues related to the strategy, to help the transfer of good practices across countries and regions, and to seek effective ways of improving the Bank's environmental performance.

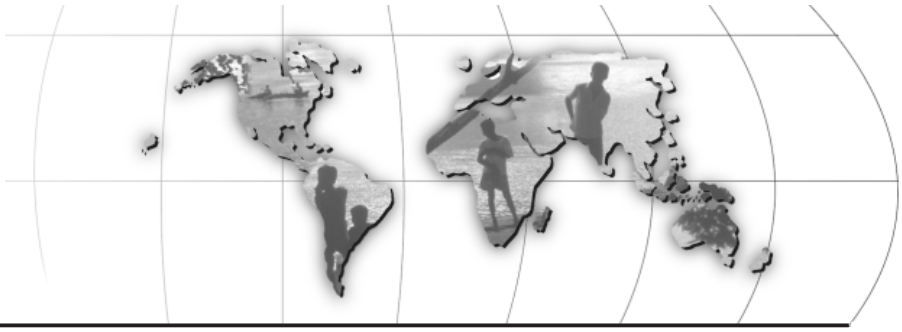


Contents

Boxes

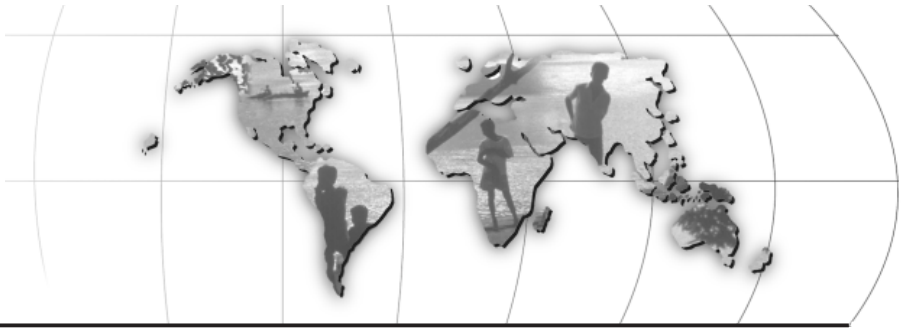
Figures

Tables



Abstract

This paper reviews the international state-of-the-art in using strategic environmental assessment (SEA) as a tool for developmental planning, policymaking, and decision-making. The World Bank's experience to date is analyzed and discussed against this international backdrop and in relation to the Bank's own policies and operational realities. Based on the Bank's recent decision to gradually broaden the use of SEA across a variety of sectors and operations, the paper identifies and discusses available options for mainstreaming SEAs. It recommends that the Bank work with external partners in piloting promising SEA approaches with interested clients, with the ultimate goals of managing environmental and social risks more effectively and improving development effectiveness of Bank operations.

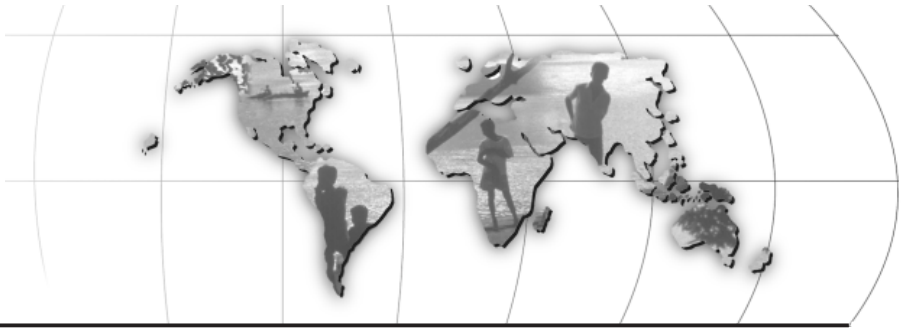


Preface

Following the 1992 Earth Summit in Rio de Janeiro, the Bank has put increasing emphasis on mainstreaming environmental concerns and priorities into the whole spectrum of its operations. The Bank's new Environment Strategy has reinforced its goal of promoting environmental improvements as a fundamental element of development and poverty reduction strategies and actions, stressing the importance of working with clients to integrate environmental objectives and interventions into investments, programs, sector strategies, and policy dialogue, while taking into account their institutional requirements and capacity constraints.

The Bank has been using Environmental Assessment (EA) for several years as a standard tool for addressing the environmental and social dimensions of investment projects. In addition, it has supported several broader Strategic Environmental Assessments (SEAs) that have been seen as potentially powerful tools that go beyond the impacts of individual projects by assessing the sectoral, regional, or policy-related linkages of environmental issues.

This report was prepared as part of the Strategy preparation process. It summarizes international and Bank experiences with SEA application, and recommends the implementation of a structured learning program, the goal being the more systematic use of SEAs in order to support the mainstreaming of environmental considerations in Bank operations.



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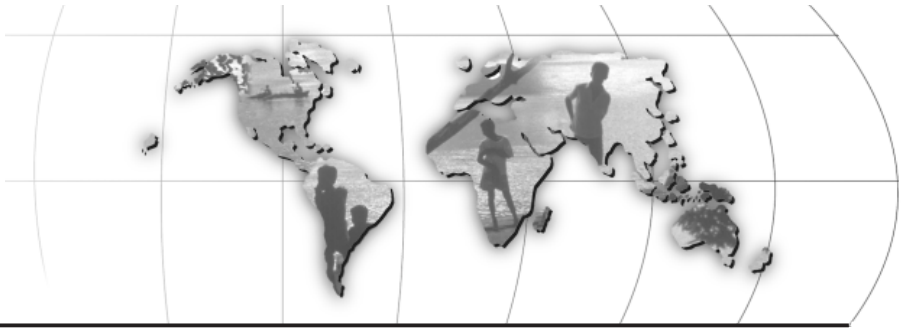
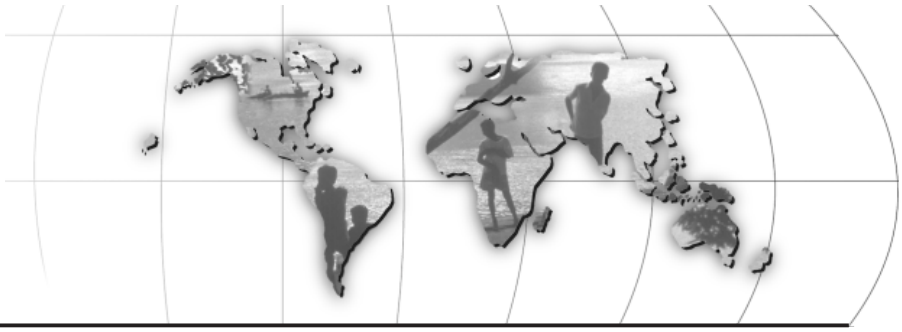


Acronyms and Abbreviations

ANSEA	Analytical Strategic Environmental Assessment
BUIP	Bali Urban Infrastructure Project
EA	environmental assessment
EC	European Commission
EDC	Electricity Development Centre (Nepal)
EER	Energy and Environment Review
EIA	environmental impact assessment
EMAP	Environmental Management Action Plan (Gujarat)
EMU	Environmental Management Unit (Gujarat)
EO	Environmental Overview
EPA	Environmental Protection Agency
ERA	Ethiopian Roads Authority
ESMAP	Energy Sector Management Assistance Programme
EU	European Union
GOI	Government of Indonesia
HMGN	His Majesty's Government of Nepal
IDA	International Development Association
IUCN	World Conservation Union
MHSP	Medium Hydropower Study (Nepal)
MOPE	Ministry of Population and Environment (Nepal)
MOWR	Ministry of Water Resources (Nepal)
NEA	Nepal Electricity Authority
NGO	Nongovernmental organization
PDF	Power Development Fund (Nepal)
PEIS	Programmatic environmental impact statement
PP	Plans and programs
PPP	Policies, plans, and programs
R&BD	Road and Buildings Department (Gujarat)

RAP	Resettlement Action Plan (Gujarat)
RoW	Right of way
RROs	Rural Roads Organizations (Ethiopia)
RSDP	Road Sector Development Program (Ethiopia)
S&R	Screening and ranking (Nepal)
SEA	Strategic environmental assessment
SEAN	Strategic Environmental Analysis
SECAL	Sectoral Adjustment Loan
WCD	World Commission on Dams



Executive Summary

Context

Since 1989, the World Bank has made systematic use of environmental assessment (EA) as a principal means to ensure environmental (and to some extent social) quality of its project portfolio. This system has worked reasonably well in managing environmental (and social) risks, limiting impacts, and improving the design and implementation of projects. However, various reviews have also identified a number of limitations. Most notably, EA is not ideally suited for addressing development policy choices at the macroeconomic, sectoral, or area-wide level. Strategic environmental assessment (SEA) has emerged internationally as a response to these limitations of EA and its use is growing quickly. Most of the SEAs were carried out by European and other industrial countries, but developing countries are becoming interested and promising experiences are emerging there as well. The Bank has been involved in a number of these experience, mostly in the form of sectoral and regional environmental assessments. There is an emerging interest in SEA not only in the World Bank but also in other multilateral financial institutions and in bilateral aid agencies.[1]

It must be stressed that SEA and EA differ in a number of respects (see Box A), but they should first and foremost be viewed as complementary approaches to improved environmental management. EA is typically a regulatory procedure with clearly defined steps to be followed. SEA is by nature a much more open-ended, consultative, and iterative process. SEA to a large extent demands partnership in order to be effective and meaningful and thrives when a society is open to policy debate. These aspects of SEA are very relevant to how the Bank might go about making more systematic use of SEA.

The principal conclusion emerging from this paper is that SEA has indeed advanced to a stage where it can contribute important value to the Bank's work and it should be introduced through a systematic testing and learning program.

Lessons from International Experience

International developments in both methodology and practical experiences provide an increasingly robust basis for moving ahead on SEA. A review of 20 SEAs within the European

BOX A.
Environmental assessment — Some key terms

Within the field of environmental assessment, the same technical terms are sometimes used and understood in different ways, depending on the particular national or institutional context. The following explanations are provided to clarify the use of terminology in this paper, which is consistent with that of the World Bank.

Environmental Assessment (EA) is the umbrella term for the process of examining the environmental risks and benefits of proposed investment programs and projects and recommending measures to avoid, minimize, or mitigate negative impacts. The World Bank's environmental assessment policy and procedures are described in OP/BP 4.01 (Operational Policy, Bank Procedures). In World Bank operations, the purpose of Environmental Assessment (EA) is to improve decisionmaking and to ensure that project options under consideration are sound and sustainable.

Environmental Impact Assessment (EIA) is the "standard" instrument used for undertaking EA of most kinds of specific investment projects. However, a number of other instruments may also be used, depending on the kind of project and the nature of environmental issues. Such other instruments may include, for example, **Environmental Risk Assessment** and **Environmental Audits**. It should be noted that EIA is often used in a way synonymous to the term EA. However, the World Bank and this paper distinguish the two.

Strategic Environmental Assessment (SEA) is used here as an umbrella term for the integration of environmental and social concerns in the process of developing policies, plans, or programs. There are a variety of instruments under the SEA umbrella, some of which overlap with instruments under EA.

SEA may also be used to assess the implications of policy-based lending operations (such as structural or sectoral adjustment), or to inform policy decisionmaking outside the context of lending. For example, SEA may be used as part of reviewing strategic policy options in the water sector, in the process of developing new national trade policies or legislation, or in planning decentralization of government functions. In these cases, the Bank may support SEA outside the EA policy and procedural framework.

There is some disagreement internationally as to the extent to which SEA should incorporate both environmental and social concerns. The trend appears to be toward considering both aspects, hence the term SEA as used here implies coverage of both dimensions.

Sectoral Environmental Assessment and **Regional Environmental Assessment** are complementary instruments normally considered part of the SEA "toolbox." They are typically used to assess the environmental (and to greater or lesser extent, social) consequences of sector- or area-specific investment programs (such as a power sector investment program with financing of multiple facilities, or a broad-based urban infrastructure program). If these assessments essentially put in place a procedure for EA of subprojects under an investment program, they are sometimes referred to as **Programmatic Environmental Assessments**. Like EIA, these instruments are normally employed by the Bank in order to meet the requirements of the Bank's EA policy. (In World Bank terminology, the "SEA" acronym has stood for sectoral environmental assessment, which was introduced as a concept before the term strategic environmental assessment become widely known. This paper uses the international convention.)

Union concluded that they tended to deliver benefits that could not have been provided by conventional EA at the specific project level and, although those benefits were not assigned monetary values, that they more than outweighed the costs. A related important finding is that SEA does not in general demand sophisticated and expensive data gathering and modeling capacity.

SEA has great potential in meeting real and growing needs in many developing countries and can assist in clarifying economic, social, and environmental tradeoffs at aggregate levels of policy and planning, and in developing balanced responses. The key shortcoming of SEA at this stage is its lack of methodological definition and robustness. A challenge for the Bank lies in developing SEA into an effective tool for environmental management without creating new and unnecessary bottlenecks.

Lessons from Review of Bank Cases

The Bank's ad hoc approach to SEA to date has produced a mixed but promising record. There have been relatively few sectoral and regional EAs, and many of these have not in fact been very strategic in substance. Fortunately, there are enough cases of successful and effective SEAs to demonstrate the usefulness of the instrument.

The majority of the Bank's SEA applications have emerged in relation to programmatic lending operations (in particular, sector investment loans and, more recently, adaptive program loans). This is the context where the Bank can most quickly and easily improve and broaden the use of SEA on the basis of its own and international experience.

Issues to be Considered

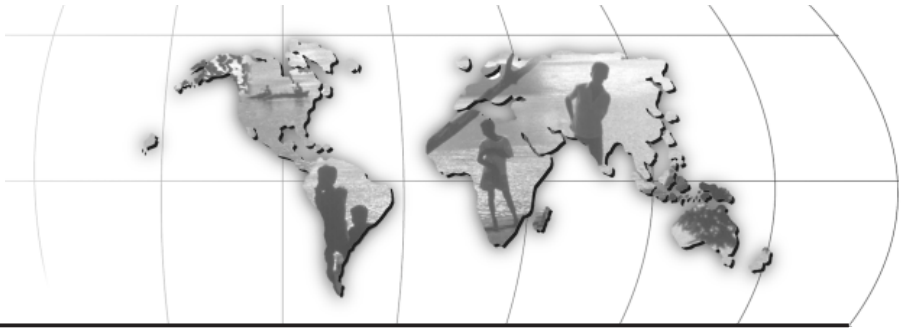
The Bank needs to develop a strategy for how it wishes to apply SEA in the years ahead, building on the guidance and directions already provided in the new Environment Strategy. This entails reviewing systematically all available SEA tools in relation to the Bank's lending instruments and other services that could benefit from SEA. This paper suggests that a pilot program may be the best way forward in the short term (the next three to five years). The program must allow for systematic testing and learning across a number of lending instruments, as well as across relevant sectors and regions. The pilot program will need careful monitoring and evaluation in order to provide useful output. Based on experience to date, it is particularly important to ensure that the Terms of Reference for SEAs indeed stipulate a strategic focus and that SEA teams include in-country (and, as needed, external) specialists with adequate professional training and experience. Undertaking SEA demands skills that are distinct from undertaking EA at the project level. Capacity for policy and institutional analysis, for example, is extremely important.

The handling of social issues in relation to environmental aspects is subject to debate both in the international SEA literature and in the Bank. There is a clear tendency internationally toward integrating environmental and social concerns in SEA. There are also attempts to move away from the very term SEA, as it does not explicitly include reference to the social dimension. Proposed terms include 'strategic impact assessment' and 'strategic environmental and social assessment'. The alternative would be to establish parallel track processes, a proposal that tends to be resisted as impracticable and inefficient not least by

those responsible for developing new policies, in SEA and, perhaps, consider a more representative name. In this report the term SEA is maintained because it continues to be the most common term in use.

The Bank's capacity to promote SEA needs to be assessed. Only a few Bank environmental specialists have multiyear and multiproject experience with SEA processes that is comparable to the international expertise in this area. The Bank may need to engage in a partnership with one or two external centers with expertise in SEA.

A pilot program should be designed in a way that makes it attractive for external cofinancing, and attractive from the perspectives of client countries and Country Managers.



Chapter 1

Introduction

Since the late 1980s, the World Bank has gradually mainstreamed environmental assessment (EA) as its standard procedure for ensuring a satisfactory environmental quality in its lending portfolio of projects. The principal purpose of EA has been to avoid, minimize, and mitigate negative environmental impacts associated with specific investment projects. All lending operations are screened for their potential environmental impact at the time of identification and are subject to four different "tracks" of EA, corresponding to the nature and extent of the potential impacts. The most sensitive projects from an environmental perspective are subject to a "full" EA, prescribed and described in detail in Bank policies, procedures, and guidelines. In the Bank's own words, EA has been applied to make sure that the institution abides by the "do no harm" principle.

Limits of Traditional EA

Recent reviews and evaluations have shown that EAs are being conducted and have had an impact on the project portfolio. Actions that would have had a negative impact on the environment are often avoided or altered so that the impacts are reduced or mitigated. Environmental management plans help guide environmentally sound project implementation. Public consultation, which is a critical part of EA, ensures that local affected groups are heard. These are some real benefits of EA, although they not always realized in full.

Still, much remains for the full potential of EA to be realized. There are several important limitations of EA at the project level:

- Project-specific EA can almost never influence macroeconomic and sectoral policies, strategic decisionmaking and planning at the sector or jurisdictional level, institutional and regulatory frameworks, or the design of investment programs involving multiple subprojects.
- EA is not generally an effective means for assessing the cumulative impacts of multiple investment activities.
- EA is not generally suitable for analyzing alternative project design or siting proposals. EAs are linked to preparation of specific proposals, and comparisons across alternative projects are usually considered untimely.

Strategic Environmental Assessment as Response to EA Limitations

Several countries and institutions have grappled with these shortcomings over the last decade or so and have come up with different responses. The dominant response emerging since the mid-1990s is embedded in the concept of strategic environmental assessment (SEA). This is now the most accepted term for any environmental analysis of impacts caused by changes in policies, laws, and regulations or by complex plans or processes containing a mixture of policy alterations, legal and institutional changes, and investment activity. Examples of this are a master plan for a metropolitan area or a change in taxation or investment law.

The Bank's response, in 1989, was to incorporate specific EA instruments as part of its Operational Directive 4.01 on EA (currently Operational Policy—or OP—4.01). These instruments were labeled sectoral EA and regional EA, and were intended to support the preparation of certain investment programs involving multiple subprojects. Relevant operations may include a large investment program in the energy sector (a sectoral EA) or a large-scale or multifaceted investment program within a defined geographical area (a regional EA). Such EAs may give the Bank and its borrowers the opportunity to consider the environmental consequences of alternative strategic decisions before they are actually made, thereby contributing to a more sustainable development strategy.

Today, these forms of EA are widely considered part of the "SEA toolbox," along with other environmental and social analytical approaches. Although there are some very good examples of both sectoral and regional EAs in the Bank's lending portfolio, these instruments have still not been applied on a wide basis and in a systematic way. The same is true, with some exceptions, with regard to SEA worldwide.

The purpose of this paper is therefore to:

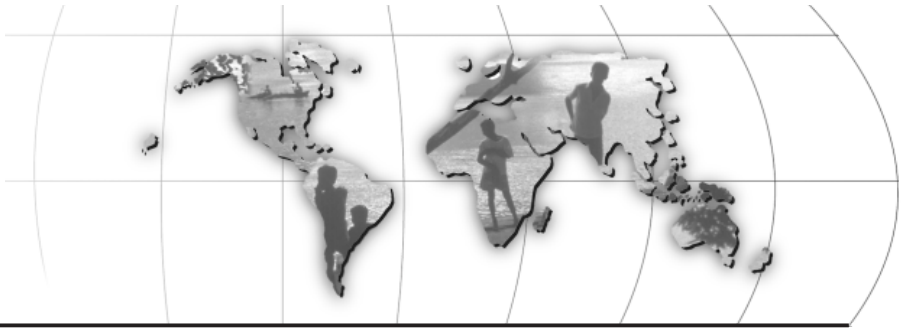
- Take stock of progress in recent years both internationally and in the context of Bank operations
- Identify gaps and problems in terms of conditions and circumstances that limit the wider use of SEAs
- Provide advice on the potential for increased use of SEA by the Bank and its clients to bring quality improvements and added value.

The paper focuses on two key questions:

- Are there compelling reasons for expanding the use of SEA?
- If so, what can the Bank do to expand its use, with the highest possible probability of successful results?

Sources of Research and Method

This paper is based on inputs from a range of people and sources. Chapters 2, 3, and 4 are based on a survey of the recent key literature on SEA in academic journals, books, reports, working papers, and Web resources. Inputs for Chapters 5 and 6 have largely come from various World Bank documents as well as from a number of interviews and more informal talks with a wide range of World Bank staff during two week-long periods with the Environment Department in December 2000 and March 2001. Central to Chapters 5 and 6 has also been a focus group session on SEA involving a number of staff from different sections of the World Bank.



Chapter 2

SEA Terminology and Principles of Best Practice

This chapter gives a brief introduction to how the concept of Strategic Environmental Assessment (SEA) is currently understood among academics and practitioners and how SEA increasingly is seen as integral to sound policymaking and planning. The goal is not to give a comprehensive introduction to the SEA literature, but to introduce some important ideas and terminology that are important for understanding how SEA can be used in a World Bank context.

What Is SEA?

The following two definitions are widely quoted in the SEA literature:

> *SEA is a systematic process for evaluating the environmental consequences of proposed policy, planning or program initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decisionmaking on a par with social and economic considerations.*
> (Sadler and Verheem 1996, p. 27.)

> *SEA is a process directed at providing the authority responsible for policy development (the "proponent") (during policy formulation) and the decision-maker (at the point of policy approval) with a holistic understanding of the environmental and social implications of the policy proposal, expanding the focus well beyond the issues that were the original driving force for new policy.*
> (Brown and Therivel 2000, p. 84.)

These definitions represent two schools of understanding of SEA. The first sees SEA as an extension of environmental assessment (EA) into the strategic arena, where the focus is on evaluating the potential environmental consequences of already proposed policies, plans, and programs. The second definition is broader. It explicitly includes the social dimension. It also suggests that SEA can be a tool for early formulation of development policies and programs—as an integrated development planning or diagnostic tool—over and above its function as an impact assessment tool along the lines captured by the first definition.

Increasingly, as indicated in this chapter, SEA is being seen internationally as a "catalyst for

and an interim step toward more integrated policy planning for sustainable development" (Sadler 1996, p. 171). In other words, the trend is toward embracing the second definition. It is of interest to note that a team of specialists from the Asian Development Bank and Murdoch University in Australia (see Annandale et al. 2001) recommends that multilateral financial institutions adopt a flexible but "sustainability-led" approach to SEA. There should be room for SEAs driven by environmental impact assessment (EIA) requirements in the context of programmatic operations, while at the same time using SEA to integrate sustainability concerns at more strategic policy levels of decisionmaking.

Whichever definition is used, it is clear that SEA mainly addresses policies, plans, and programs (PPPs), not projects.[2] (Generic definitions of PPPs are provided in Box 2.1.)

Common to both SEA definitions is an implicit understanding that the assessment should be approached similar to the way the Bank approaches EA at the project level in the sense that "SEA should be seen, not as a single tool but, rather as a *process* in the context of which a family of tools may be applied" (Thissen 2000). However, SEA differs from EA in the sense that it does not lend itself easily to being captured in a specific regulated, administrative procedure. This difference is of critical importance in the context of development finance and is discussed further in Chapters 5 and 6. The broader definition in particular brings home the idea that SEA is a seen as an open and more iterative process than normal EA.

BOX 2.1.
Definitions of policies, plans, and programs

Policy: A general course of action or proposed overall direction that a government is or will be pursuing and that guides ongoing decisionmaking.

Plan: A purposeful, forward-looking strategy or design, often with coordinated priorities, options, and measures, that elaborates and implements policy.

Program: A coherent, organized agenda or schedule of commitments, proposals, instruments, and/or activities that elaborates and implements policy.

Source: Sadler and Verheem 1996, p. 28.

Toward Integrating Sustainability

There are several reasons behind the growing use and interest in SEA internationally. First and foremost, public demands have intensified, particularly in many industrial countries, for more systematic consideration of environmental and social impacts of policymaking and strategic planning. Public pressure groups have also demanded more transparency and openness around policymaking processes. Second, environmental policymakers as well as environmental technical specialists have come to see SEA as a tool to compensate for the limitations inherent in EA when it comes to addressing fundamental policy choices at the sector or macroeconomic levels.

A step toward integrated sustainability appraisal

SEA can play an important role in enhancing the integration of environmental and social objectives in policy and planning processes, thereby facilitating the implementation of sustainable development. A more integrated system of planning means that sustainability criteria are incorporated throughout the planning process, for instance, in the identifi-

cation of suitable (or unsuitable) locations for development and in the assessment of alternative PPPs (Thérivel and Partidário 1996).

Limitations of project-level EA

Although project EA has become widely used and accepted as a useful tool in decisionmaking, it largely reacts to development proposals rather than proactively anticipating them. Because EAs take place once many strategic decisions have already been made, they often address only a limited range of alternatives and mitigation measures. The use of SEA potentially can have significant benefits in supplementing, and to some extent reducing, the necessary scope and costs of EA work downstream.

Instead of attempting to define one best way of performing SEA, there is an emerging consensus in the literature that a limited set of more general principles should be established that potential users of SEA can recognize and that allow for variety in implementation forms, depending on the context. A proposed set of generic principles for good SEA practice is given at the end of this chapter.

SEA, EIA, and Different Levels of Decisionmaking

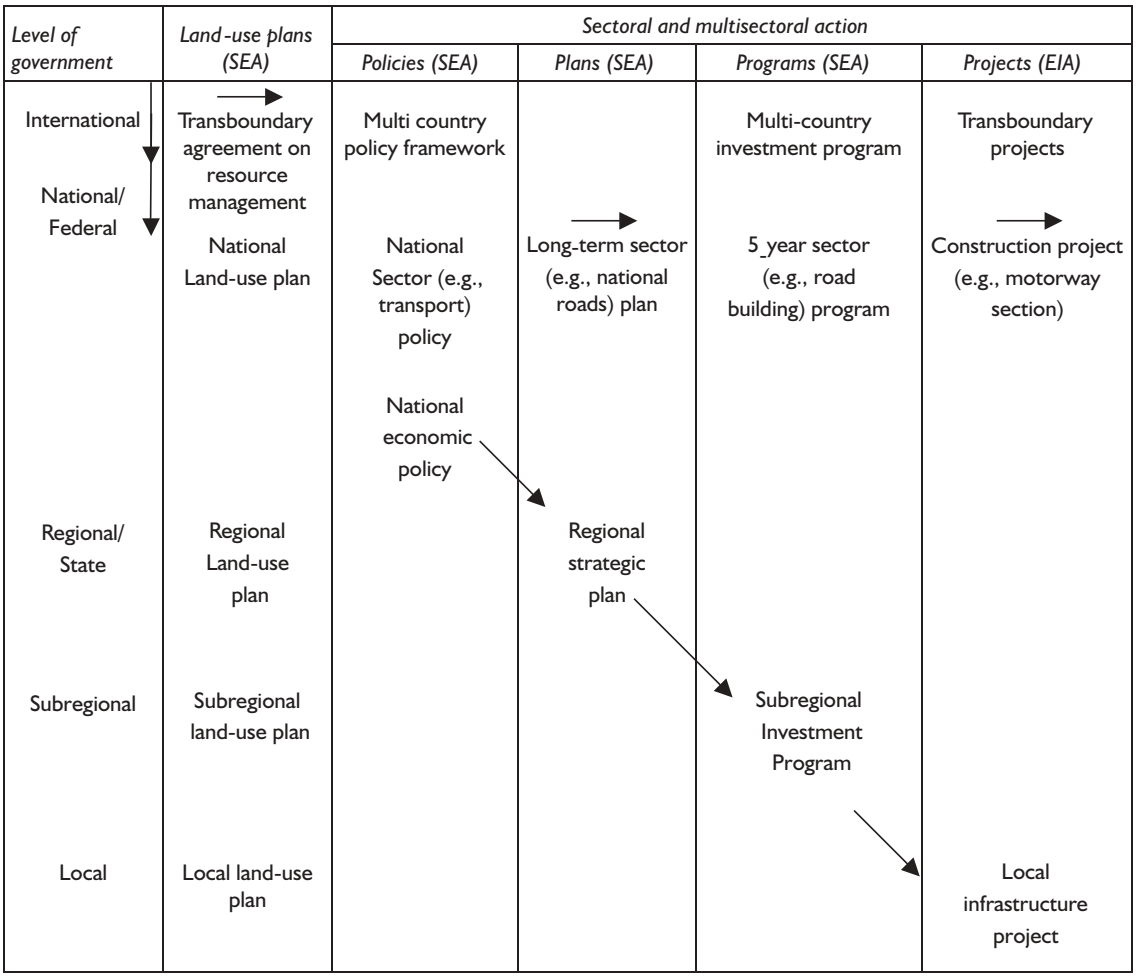
An ideal SEA process influences the making of a policy, plan, or program from the earliest stage of development. EIA is applied to specific projects that may be freestanding or within a program. SEA and EIA should be related to each other within the same policy and planning process, and are intended to complement each other. This is often illustrated through the concept of "tiering" (Lee and Walsh 1992) (see Figure 2.1). This is a simplified representation of what, in reality, could be a more complex set of relationships. The higher the tier level (such as national policies), the broader and less detailed the SEA is likely to be.

The competent authorities that decide on a policy, plan, or program proposal are usually a government entity, represented in Figure 2.1 as national/federal, regional/state, subregional, and local government. These are therefore the agencies that have to be the clients (and owners) of a structured SEA. Other stakeholders in a SEA process include the action-leading agent (the agent responsible for developing the PPP), environmental authorities or other special competence entities, bilateral and multilateral donors, affected and interested people on macro and micro levels and their organizations, relevant nongovernmental organizations, and consultants and researchers preparing the SEA process and reports.

Evolving Principles of Good SEA Practice

It is clear that SEA is an evolving concept and approach, and that no single "best" SEA process has been recognized. The underlying principles for good SEA must be broad enough to include effective approaches designed for a wide range of specific uses—approaches that may differ considerably and range from simple to comprehensive procedures or that cover different material. In some respects, the principles that underlie good SEA practice are similar to the principles that would be expected in good EA work more generally,

Figure 2.1. Sequence of actions and assessments within a tiered planning and assessment system



such as public involvement. In other respects, SEA demands competencies that are not usually in highest demand in project-specific EAs (in an EIA, for example), such as assessing the environmental or social consequences of regulatory or institutional reforms.

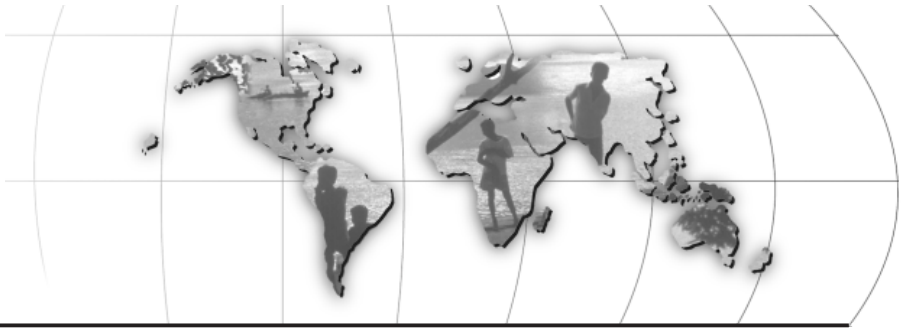
Key principles that distinguish SEA from other forms of EA include:

- SEA targets key policy/program decisions and demands formal involvement of the decisionmakers, with appropriate timing and time-scale, rather than a project focus.
- Data needs and analysis are targeted to critical questions rather than being comprehensive.
- SEA employs a consultative process throughout rather than consultation on specific documents.
- SEA is flexible and iterative, including feedback (and review/monitoring where appropriate) as part of the process.

Areas that both SEA and EIA tend to have in common include:

- Adequate scoping

- Stakeholder involvement and transparency through consultation and dissemination
- Description of proposal under consideration
- Consideration of alternatives, including the option of no action
- Evaluation of impacts and proposed mitigation measures
- Communication of decisions, with explanation/justification
- Proposals for implementation, monitoring, and evaluation.



Chapter 3

Emerging SEA Approaches at National and International Levels

This chapter reviews international strategic environmental assessment (SEA) practices to date in industrial, transitional, and developing countries. It focuses on the emergence of formal and informal SEA processes, with a particular look at the recently adopted European Union (EU) Directive and interesting SEA developments in South Africa.

SEA Implementation and Practice in Different Countries

Current SEA processes internationally vary considerably. They may be formal or informal, comprehensive or more limited in scope, and closely linked with or unrelated to either policy and planning instruments. Existing systems of SEA can be divided into those established through legislation (in the United States, the Netherlands, New Zealand, and Western Australia), through administrative orders or Cabinet Directives (in Canada, Denmark, and Hong Kong), and through advisory guidelines (the United Kingdom and the EU) (Glasson and others 1999).

SEA systems are developing rapidly, and others are likely to be set up in the near future. The new EU Directive and the recently established process for a UN Protocol on SEA under the Espoo Convention have already given further momentum to a fast-moving SEA field.

In general, three broad approaches to SEA have been adopted to date (Dalal-Clayton and Sadler 1998):

- A relatively separate SEA process, typically as an extension of environmental impact assessment (EIA) to policies, plans, and programs (PPPs) (for example, in Canada)
- A two-tiered system (in the Netherlands), with formal SEA required for sectoral plans and programs and an environmental "test" applied to strategic policies
- Incorporation of SEA principles into policy appraisal, as in the United Kingdom, or in regional and land use planning, as in Sweden.

Recently, there has been growing recognition of the importance of integrating environmental assessments with other policy and planning instruments (see, for example, Eggenberger and Partidário 2000).

Internationally, most SEA experience tends to have been at the level of programs and plans.

SEA here can be seen as an extension of EIA to facilitate the consideration of environmental (and sometimes social) impacts of strategic decisions. However, there have been fewer applications at the "higher" level of policies—particularly at the national level.

Industrial Countries

United States

Among the countries that have applied SEA, the United States has the most long-standing and broad-based experience. A federal agency must prepare Programmatic Environmental Impact Statements (PEISs) under the National Environmental Policy Act of 1970 for any of the following types of actions if they have the potential to significantly affect the quality of the human environment: agency proposals for legislation; adoption of rules, regulations, treaties, conventions, or formal policy documents; adoption of formal plans that guide or prescribe alternative uses of federal resources; or adoption of programs, such as a group of connected actions that implement a specific policy (UNECE 2000b). Most PEISs essentially involve groups of projects that have technical or geographical similarities, and thus result in a site-specific analysis.

About one-third of the states have their own EIA regulations, but only a few of these also cover policies, plans, and programs. Of these, the SEA system established by the California Environmental Quality Act of 1986 is the most well developed. Like project EIAs, the California Program Environmental Impact Report must include a description of the action, a section on the baseline environment, an evaluation of the action's impacts, a reference to alternatives, an indication of why some impacts were not evaluated, the organizations consulted and their responses, and the agency's response to the responses (Glasson et al. 1999). Some key barriers faced by U.S. SEA practitioners include a piecemeal approach to PEISs, multiple decisionmaking processes compounded by lack of coordination within and amongst the various agencies, and a process that is fundamentally oriented toward the production of a report (Thérivel and Partidário 1996).

Canada

In Canada, at the federal level, the application of EA principles to PPP decisionmaking has been ongoing since the late 1980s. Guidelines for implementing a 1999 Cabinet Directive on SEA have recently been published (CEAA 2000). The Directive states that "Ministers expect an SEA of a policy, plan, or program proposal to be conducted when the following two conditions are met:

1. The proposal is submitted to an individual minister or Cabinet for approval
2. Implementation of the proposal may result in important environmental effects, either positive or negative."

Departments and agencies are also encouraged to conduct SEAs for other PPPs when circumstances warrant. The Directive also requires SEAs to consider: "the scope and nature of likely environmental effects, the need for mitigation to reduce or eliminate adverse effects, taking mitigation into account. The SEA should contribute to the development of PPPs on an equal basis with economic or social analysis; the level of effort in conducting the analysis of potential environmental effects should be commensurate with the level of anticipated environmental effects." In other words, the Canadian SEA

Directive essentially elevates EIA to the level of policies, plans, and programs.

New Zealand

In New Zealand, SEA is seen as a tool for achieving sustainability as part of an integrated planning and assessment process. This is in contrast to the United States and Canada, where SEA has evolved from EIA provisions.

To help achieve the objective of SEA, the Resource Management Act of 1991 requires all PPPs at national, regional, and district levels to be evaluated to determine the likely costs and benefits of alternative means of achieving the PPPs and so as to be "satisfied that any such [PPP] (i) is necessary in achieving the purpose of [the] Act; and (ii) is the most appropriate means of exercising this function" (Glasson et al. 1999). Because environmental issues and information are used as an integral part of the policy process, formal SEA has been used only rarely in New Zealand to date (Sadler and Verheem 1996).

European Union

A distinction must first be drawn between application of SEA by institutions of the EU and the application of SEA by the member states. As regards the former, the European Community Treaty obliges the EU to integrate environmental protection requirements into the definition and implementation of its policies and activities, in particular with a view to promoting sustainable development. Within certain sectors the EU has adopted Directives that make explicit and implicit reference to SEA (UNECE 2000b).

Recently, the EU passed a Directive mandating SEA for certain plans and programs. Member States must integrate the new instrument into their national systems within three years. The Directive is discussed at length later in this chapter.

The Netherlands

In the Netherlands, the SEA system consists of two parts, one similar to the U.S. approach, the other more like New Zealand's integrated system. First, under the EIA Act of 1987, an SEA is required for plans for waste management; for the supply of drinking water, energy, and electricity; and for some land use plans. These SEAs must include full public participation, independent expert review at both the scoping and review stages, the consideration of alternatives, and monitoring.

Second, since 1995 an environmental test (the "E-test") has been required for all Cabinet decisions with potentially significant environmental impacts. As part of this test, an "environmental section or paragraph" must be prepared by the lead agency, which aims to fully integrate environmental and sustainability concerns into national policymaking (Glasson and others 1999) (for more on the E-test, see Appendix C).

United Kingdom

Two distinct approaches to SEA are evolving in the United Kingdom in the form of so-called environmental appraisals. One approach concerns government policies and the other addresses local authority development plans. Government policies are primarily appraised through an extended form of economic analysis. Environmental appraisal of development plans adopts a more physical approach, integrating biophysical, social, and economic issues in plan formulation and

decisionmaking, based on a combination of planning and project EIA principles and methodologies. The rationale for undertaking SEA in the United Kingdom, at both policy and development plan levels, is founded on concepts of sustainability (UK Cabinet 1994) and on a long tradition of economic appraisal (Thérivel and Partidário 1996).

SEA in Developing Countries

Developing countries have limited SEA experience to date, particularly outside the context of programs and plans financed by international aid. However, there are clear signs that SEA is being studied with growing interest in many countries and some, such as South Africa, Indonesia, Chile, Colombia, and Brazil (São Paulo State), are already developing policies or guidelines on SEA. Indeed, some of the most interesting applications of SEA have been undertaken in developing countries (see, for example, Appendix B). Some of these experiences may illustrate the claim that has been made that SEA may carry larger benefits in developing than in industrial countries by helping to clarify the costs and benefits of strategic development alternatives and the tradeoffs among economic, social, and environmental objectives. On the other hand, some of the poorest countries may still see SEA as yet another potentially constraining and resource-demanding burden on their economic growth and on industrialization.

Issues related to openness, democracy, and governance may also influence the rate at which SEA systems are being or will be implemented. For example, in political systems that rely on closed and nonparticipatory traditions, it is hard to conceive of Cabinet decisions or the legislative proposals of government departments being open to public scrutiny as part of an SEA (Thérivel and Partidário 1996).

A brief overview of SEA experience in different regions is provided here (largely based on George 2000). This is not meant to provide comprehensive coverage; past and current initiatives across the developing world are considerably more numerous than the examples provided.

East Asia and the Pacific

The World Bank has supported a number of SEAs in countries such as Indonesia, Thailand, and Vietnam, particularly in the energy and water resources sectors. SEA has been used in China, the Republic of Korea, and Taiwan for regional development plans, and also for certain policies. The Asian Development Bank is supporting an SEA for the Greater Mekong River Basin. Work on possible future SEA legislation is under way in China and Indonesia.

Latin America and the Caribbean

SEA has been introduced formally under state legislation in São Paulo State in Brazil. Regional urban zoning plans are subjected to EA in Chile. Work on SEA guidelines is under way in Colombia. Both the Inter-American Development Bank and the World Bank have supported SEA for large, transnational investment programs. The Organization of American States has spearheaded a large number of area-wide development plans throughout the region (for specific river basins, for example), with a strong emphasis on assessing and comparing the impacts of alternative plan components.

Middle East and North Africa

SEA has been used for coastal tourism development in Egypt. A number of countries have recently embarked on SEAs in a range of sectors, including agriculture, energy, and transport. The World Bank is supporting some of these efforts.

South Asia

SEA experience in South Asia is evolving quite rapidly. SEA was carried out for the Bara Forest Reserve in Nepal in 1995, supported by the World Conservation Union (IUCN). The World Bank has supported an SEA of a national drainage program in Pakistan and a comprehensive environmental review of hydropower development options in Nepal (see Appendix B). In India, some SEAs have been carried out in the transport and rural sectors, and SEA approaches are being used in the preparation of coastal zone management plans and zoning plans for industrial development. Some countries are in the process of strengthening their SEA capacity, among other things through a joint training program between IUCN Nepal, the Asian Regional Environmental Assessment Program, and the Netherlands Commission for EIA (Adhikari and Khadka 1998).

Sub-Saharan Africa

The World Bank has supported SEA of a national roads program in Ethiopia. Other donors, such as the Netherlands, have been involved in a number of SEA or SEA-like processes. In Tanzania, strategic assessments are part of the planning process for national parks. South Africa has recently developed SEA guidelines (as described later in this chapter).

SEA in Countries in Transition

Many Central and East European countries formally request the preparation of an SEA for national PPPs. However, there seems to be limited practical application of these requirements at the national level. On the other hand, many of these countries have extensive experience with EAs of regional and local land use plans (UNECE 2000b). This approach builds on the land use planning systems that are well established in the formerly centrally planned countries.

In many Central European countries, such as Poland, Hungary, and Slovakia, SEA is being used for distinct purposes, such as analyzing the impacts of privatization. This kind of application has not been as common in other countries. The two main problems of SEA practice in these countries to date are limited public consultation and the limited effect on decisionmaking (Thérivel 1997).

Among the newly independent states of the former Soviet Union, some countries make no distinction between EIA and SEA, and their legislation specifies that laws, programs, plans, and projects are all subject to environmental assessment. In some of these countries, the former Soviet system of State Ecological Expertise is still applied, sometimes under new legislation (for instance, in Belarus, Georgia, Kazakhstan, and Ukraine). In practice, however, other than the Russian Federation, there appears to be little or no development of SEA among the newly independent states (Dalal-Clayton and Sadler 1998).

The recently approved EU Directive on SEA is likely to have a direct impact in many Central and East European countries, particularly

those that are on track toward membership in the EU or that aspire to it in the long term.

SEA in Development Cooperation

EA requirements are now an established component of development assistance. Recently, SEA approaches have also been introduced by some multilateral and bilateral donor agencies and by other international development organizations. As with EA, "these conditionalities are becoming an important part of SEA practice in developing countries and a vector for their wider introduction and adaptation for domestic applications" (Dalal-Clayton and Sadler 1998). In general, donor agencies have not introduced formal, systematic procedures for SEA but rather have chosen to require the use of SEA on a case-by-case basis, depending on the needs of the specific program or project. A 1997 review by the Development Assistance Committee of the Organisation for Economic Co-operation and Development found that 19 of the 23 donors/lenders investigated had undertaken SEA in some form. Among bilateral donors, however, only Australia, Finland, and the Netherlands had requirements in some form. A further seven multilateral agencies had some policy guidelines for SEA.

In addition to the World Bank (the experience of which is reviewed in Chapter 5), many multilateral and bilateral donor agencies have developed SEA initiatives specifically for development programs. Two are highlighted in Box 3.1 (see also Chapter 6 and Appendix C for more on these and other approaches).

A recent article in *Environmental Impact Assessment Review* provides an interesting and fresh look at how multilateral financial institutions may approach SEA in the future

BOX 3.1.
Examples of SEA initiatives in development cooperation

The U.N. Development Programme has promoted the application of an Environmental Overview (EO) in the formulation stages of aid programs (Brown 1997a, Brown 1997b). It is a structured procedure involving project staff and key decisionmaking and other stakeholders. It raises questions similar to those asked by conventional EIAs, but with different emphasis. First, it asks questions regarding the baseline conditions for the project/program, followed by questions concerning the impacts and opportunities and how the draft project/program can be redrafted in an operational strategy to take these and the baseline conditions into account. The process may take from a few hours to several days to complete.

A related approach, termed Strategic Environmental Analysis (SEAN), has been developed and tested by the Dutch group AIDEnvironment in co-operation with SNV (Netherlands Development Organization) (AIDEnvironment 1999, Kessler 2000). This methodology was developed to allow integration of environmental issues into strategic plans aimed at sustainable area development. SEAN aims to integrate environmental concerns into policies and strategic plans by providing a set of relevant strategic options for sustainable development. In practice, the SEAN methodology has been applied mainly to support governmental and nongovernmental organizations in carrying out an environmental analysis and planning process to define a sustainable development policy or strategic plan (see Chapter 5). The SEAN approach may be considered more proactive than most SEAs to date in the sense that it aims to contribute more directly to (re)formulation of policies, plans, or programs (AIDEnvironment 1999). In addition, SEAN aims to be more open-ended and part of the planning cycle than SEA.

(Annandale et al. 2001). Written by a team of Australian and Asian Development Bank environmental specialists, it argues for a systematic and comprehensive introduction of SEA, where strategic environmental and social review "loops" are attached to already established policy processes and the entire programming cycle. The question that must be discussed is whether SEA is sufficiently advanced as a discipline to justify such a comprehensive introduction at this point in time.

Two Important SEA Initiatives

The recently approved European Union Directive on SEA represents the first regulation of SEA by a multinational body. The South African guidelines on SEA stand apart as an attempt by a developing country to adapt SEA to its own specific needs and priorities. These initiatives therefore deserve special attention.

The European Union Directive

The EU Directive on SEA will require member states to establish mandatory procedures for the environmental assessment of certain plans and programs (PPs). Policies are exempt from SEA under the Directive. The common position adopted by the EU is as follows:

An obligatory assessment shall be carried out for all plans and programs, (a) which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects listed in Annexes I and II of Directive 97/11, or (b) which in view of the likely effects on sites have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC.

For other plans and programs which set the framework for development consent of projects, Member States shall carry out an environmental assessment if they determine, on the basis of a set of given criteria, that they are likely to have significantly environmental effects (UNECE 2000a).

The Directive requires the lead agency responsible for the plan or program to assess its impacts on human beings, fauna, flora, soil, water, air, climate, landscape, material assets, and the cultural heritage. The SEA report would need to include (EC 2000):

- An outline of the contents and main objectives of the PP, and the relationship with other relevant PPs
- The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the PP
- The environmental characteristics of areas likely to be significantly affected
- Any existing environmental problems that are relevant to the PP including, in particular, those relating to any areas of a particular environmental importance, such as areas pursuant to Directives 79/409/EEC and 92/43/EEC
- The environmental protection objectives established at international, community, or member state level that are relevant to the PP and the way those objectives and any environmental considerations have been taken into account during its preparation
- The likely significant (secondary; cumulative; synergistic; short-, medium-, and long-term; permanent and temporary

positive and negative) effects on the environment
- The measures envisaged to prevent, reduce, and as fully as possible offset any significant adverse effects on the environment of implementing the PP
- An outline of reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken, including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information
- A description of measures envisaged for monitoring the implementation of the PP
- A nontechnical summary of the information provided under the above headings.

The environmental authorities and public have the right to comment on the SEA findings. These comments, the SEA itself, and the comments of any member states affected by transboundary effects must be taken into account before a PP subject to SEA can be adopted.

The theoretical and methodological basis for the SEA Directive and SEA practice in Europe is currently being developed further through a large research program called Analytical Strategic Environmental Assessment, funded by the 5th Framework Research Programme of the European Union.

SEA in South Africa

In South Africa, SEA was introduced in response to the limitations of project-specific EIAs.[3] The report *SEA Primer* (CSIR 1996) initiated the debate with a strong argument in favor of systematic SEA application in South Africa. In its aftermath, some SEAs were undertaken, but without an agreed understanding of what the concept implied and what would be appropriate methodologies.

In response to this problem, a set of generic guidelines was produced to promote a common understanding of SEA in the country (DEAT and CSIR 2000). The approach to SEA became integrated into existing plan and program processes and took on some unique features compared with mainstream international theory and practice. South Africa's guidelines concentrate on the opportunities and constraints that the environment places on development, rather than on the impact (consequences) of development on the environment. This includes the proactive evaluation of the capacity of the environment to sustain various types of development. SEA is undertaken at the strategic level of PPP formulation, before specific project proposals are developed. The goal of SEA is the integration of social, biophysical, and economic aspects into plans and programs to promote sustainable development.

Based on the practical experience gained in conducting SEA, generic principles were developed:

Substantive SEA principles
- SEA is underpinned by sustainability.
- SEA identifies the opportunities and constraints that the environment places on the development of plans and programs.
- SEA sets the criteria for levels of environmental quality or limits of acceptable change.
- The scope of SEA is defined within the wider context of environmental processes.

- SEA is based on the principles of precaution and improvement.

Procedural SEA principles

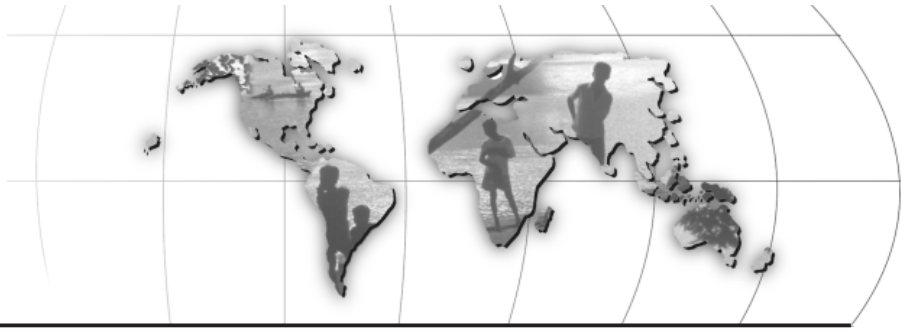
- SEA is set within the context of alternative scenarios.
- SEA is a flexible process, which is adaptable to the planning and sectoral development process.
- SEA is a strategic process, which begins with the conceptualization of the plan or program.
- SEA is part of a tiered approach to EA and management.
- SEA is a participatory process.

The focus is on proactively integrating sustainability into plans and programs. An integrative approach to SEA allows for the development of flexible SEA procedures, which respond to context-specific conditions. This is particularly important in South Africa's diverse range of social, economic, biophysical, legislative, and administrative conditions.

The SEA guidelines do not mandate the use of SEA. The guidelines are considered a self-regulatory tool—that is, no particular authority would have legal responsibility for undertaking or approving SEAs. Initiation of SEAs would arise from the benefits they provide decisionmakers.

The SEA guidelines do not prescribe a unified SEA process but rather identify key elements of an SEA to guide the development of context-specific processes. The elements are:

- Identification of broad plan and program alternatives
- Screening
- Scoping
- Situation assessment
- Formulation of guidelines for the development of the plan and program
- Developing and assessing alternative plans and programs
- Developing a strategy for implementation, monitoring, and auditing
- Decisionmaking
- Implementation.



Chapter 4

Lessons from International SEA Practice

This chapter synthesizes some important lessons from international strategic environmental assessment (SEA) practice. Two case examples of good international practice are included in Appendix A.

To date, some form of SEA process has been used for a wide range of policies, plans, and programs (PPPs), with the major case load from sectors such as energy, waste management, land use planning, and transport. SEAs in the sectors of tourism, water management, industry, and agriculture are not as common. Application of SEA for plans and programs is generally more common than for policies, although this will start to balance out when SEA approaches and methodologies develop from growing practice. SEA has also been used for PPPs that involve two or more countries.

Common SEA Process Elements

Currently, SEA and environmental impact assessment (EIA) processes, although applied during different phases of the planning cycle, contain some similar assessment activities. The basic distinction is in some ways related to the coverage, including:

- Assessing alternative PPPs
- Additive effects of many small projects that do not require EIA
- Induced impacts, where one project stimulates other developments
- Synergistic or cumulative impacts, where the impact of several projects exceeds the sum of the individual parts
- Global impacts such as biodiversity loss and greenhouse gas emissions (Thérivel and Partidário 1996).

Different techniques or methodologies have been applied under each of the main stages and activities of SEA. The choice of technique depends on a whole range of factors, including the purpose of the SEA, the availability of data, local environmental assessment capacity, decisionmaking structure and culture, and resource constraints.

Costs and Benefits of SEA

Costs and benefits of SEA processes have yet to be studied in much detail. It is generally agreed that costs do and should vary considerably, depending on the specific case, country situation, and decisionmaking culture as well as on the SEA approach chosen. It is worth

noting that relatively low cost SEA approaches may yield significant benefits. In Norway, implementation of the European Union (EU) directive on SEA was found to entail only modest incremental costs for authorities (ECON 1999).[4]

A relatively recent report commissioned by the EU analyzed 20 SEA case studies from Europe covering a variety of SEA initiatives, including regional and land use plans, government policies and bills, flood defense strategies, and major infrastructure programs (EC 1996). The benefits and costs of these SEA cases are summarized below.

Benefits

The 10 principal benefits of the SEA process as identified by respondents are:

- Providing a systematic review of relevant environmental issues
- Iimproving and refining the basic strategic concepts involved in the PPP
- Achieving a clearer understanding of the potential environmental effects
- Enhancing the PPP's contribution to the overall goal of environmental sustainability
- Creating a better balance between environmental, social, and economic factors (thus aiding the decisionmaking process)
- Simplifying the process of environmental investigations at the individual project level, and thereby reducing or possibly avoiding the need for project EIA while also accelerating the process of decisionmaking
- Enhancing the transparency of the PPP making process, and winning public support for preferred options or strategies
- Providing guidance on the development of mitigation proposals
- Helping to define environmental targets for monitoring purposes
- Avoiding subsequent delay in PPP implementation.

The study does not attempt to value these benefits in monetary terms. Other SEA studies identify similar benefits (Sadler 1996), and it is likely that these benefits would grow as lessons from good practices and methodological refinements are continuously fed into new SEA applications. In other words, SEA systems and practice will not reach their full potential overnight.

Costs

Costs of the use of SEA are generally easier to measure than benefits. The main costs arise from the use of internal staff time, payments for expert advice and consultants' time, and publicity and publications. Of these costs, the staff and consultancy expenses typically account for over 90 percent of SEA costs, according to the EU report. However, where SEA processes are highly integrated with PPP-making and decisionmaking processes (which is the ideal), the costs directly attributable to SEA may be hard to separate. Table 4.1 provides an overview of the costs and benefits identified in the EU study.[5] The benefit categories refer to the 10 types of benefits just described.

A typical feature of SEA costs compared with EIA costs in the European context is that the costs of SEAs are usually borne by the public sector whereas those of EIAs are borne by the promoter (usually a private developer) (EC 1997).

Despite the problem of measurement, particularly of the benefits, the EU study concludes

Table 4.1. Benefits, costs, and time period for 19 SEAs in Europe

SEA Case	*Benefits (number of categories)*	*Costs (percent of PPP costs)*	*Time (period during which SEA was undertaken)*
Lower Colne Flood Alleviation Scheme, UK	6	4	3 years
River Thames Strategic Flood Initiative, UK	5	<0.1	10 months
Herfordshire County Council Structure Plan, UK	8	<1	<1 year
Bedfordshire County Council Structure Plan, UK	7	2.5	–
Lancashire County Structure Plan, UK	5	–	4–5 months
National Forest SEA, UK	7	–	1 year
Central Regional Council Structure Plan, UK	4	0.1	5 months
Transport Options for Edinburg h Region, UK	8	0.02	4 months
Government Bill on Energy Efficiency, Denmark	4	0.10	Few days
Gov'nt Bill on Landowners Rights, Denmark	2	–	Few days
Gov'nt Bill on Telecommunications, Denmark	2	–	Few days
Fixed Bridge Link (to Sweden), Denmark	6	–	6 months
North Jutland Regional Plan, Denmark	8	15	2 years
Transport and Env. Action in Vejle, Denmark	8	10	6–7 years
Land Re-allocation in Flanders, Belgium	1	3	10 months
High Speed Rail Network, Belgium	4	0.10	6 months
NordRhein Westphalia Roads Program, Germany	7	4.7	1 year
Land Use Plan for Erlangen, Germany	5	–	–
Intermodal Transport Programs, France	4	–	–

Source: Based on EC 1996.

that in general the benefits of SEA tend to be larger than the costs. Many studies do, however, stress the need for further research in this area. The EU study concludes that "SEA is being used...as a logical extension to their existing strategic planning processes, and that increases in costs are regarded as marginal to the overall scale of investment." In addition, it is likely that the costs of SEA applications will decrease over time as systems and practice get more efficient (EC 1997).

Barriers to Implementing SEA

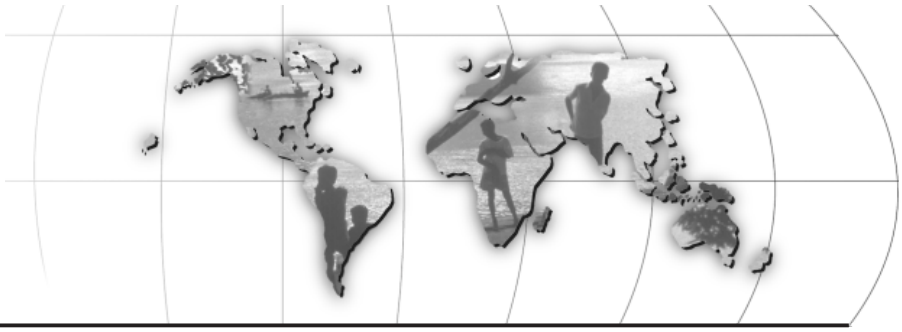
The costs of SEA application constitute a type of barrier to the further implementation and use of this approach. Partidario (1994) has identified the most common barriers, of which some may translate into direct monetary costs. In most cases, "difficulties seem to derive from the uncertainty and vagueness associated with SEA, and from its potential role in environmental decisionmaking. Problems felt include a lack of guidance and training, lack of clear accountability and responsibility, lack of resources and unknown and untested methodologies." (Thérivel and Partidário 1996.)

Main Lessons from Recent Experience

Some key lessons from international SEA practice can be summarized, mainly based on Sadler (1996), Sadler and Verheem (1996), and EC (1996, 1997):

- SEA systems should be flexible and broad: SEA process design should flexibly relate to the configuration of policymaking, not the other way around. A richer mix of experience may be gained by stepping outside the confines of EIA-based developments.
- Begin SEA as soon as feasible in the process of PPP formulation.
- Be aware of the reality of the situation, that the SEA is part of a larger process, and that the purpose is not to produce a study but to inform decisions.
- Integrating the SEA process into the PPP-making process requires an in-depth understanding of the decisionmaking process in the country or sector; it is important to:
  - Get the right information to decisionmakers at the right time, and
  - Establish which strategic actions an SEA is required for, and where in the whole decisionmaking process SEA can most optimally be introduced.
- Use the simplest procedures and methods consistent with the task; there is a tendency to include more information and more sophisticated analysis than is strictly necessary for the task at hand.
- SEA becomes more effective and efficient in cases where an environmental policy or sustainability strategy exists.
- Public participation and consultation are important in SEA, and particularly in scoping stages.
- Monitoring and post-evaluation are the major weaknesses in the current SEA practice. The establishment of guidelines on indicators and methods is key.
- Proponents should always be made responsible and accountable for the consequences of their proposed PPP.

Many SEA systems are still in a state of evolution and refinement, but the practice of SEA and the interest in its further application have increased in the last five years. At the same time, it must be pointed out that the ease and effectiveness of implementing SEA in any country will depend very much on the capabilities of the institutions, and care must be taken not to be overly ambitious in applying SEA in Bank client countries.



Chapter 5

Strategic Environmental Assessment in the World Bank

The Second EA Review (1997), covering 1992–96, found the experience with sectoral and regional environmental assessment (EA) to be relatively limited in scope and variable in quality. There was a growing trend in the use of these "upstream" forms of EA (particularly sectoral EA), roughly commensurate with the trend toward more programmatic lending. But in the majority of cases the main focus was on putting in place adequate processes and requirements for subproject EAs. There was usually limited "strategic" content in them, at least in the way this concept is understood today.

However, there were some innovative cases over the years that were highlighted as emerging examples of good practice. These showed the potential usefulness and the feasibility of moving the EA process upstream in relation to the project cycle. It was indeed possible—under the right circumstances—to examine environmental consequences of different policy options and to consider alternative investment possibilities at the aggregate level. In some cases, decisions that could otherwise have proved costly in environmental and social terms, as well as in terms of the reputation of the Bank, were avoided.

These cases also formed much of the basis for development of more detailed guidance documents for Bank staff and borrowing countries on sectoral and regional EA (EA Sourcebook Updates). A particular emphasis was placed on the use of sectoral and regional EA to bring about early consideration of different investment alternatives, before actual decisions had been made.

Guidance, good practice, and case load notwithstanding, the work with the Second EA Review revealed that further "mainstreaming" of strategic environmental assessment (SEA) in Bank work faced some obstacles. The principal obstacles were:

- Limited interest and willingness by many borrowers to subject strategic development issues to environmental assessment
- Limited appreciation of the potential utility of "upstream" EA among operational staff, and doubts about robustness of results
- Lack of resources for perceived "nonessential" studies at early stages of project preparation
- Concern that, at the end of the day, the pressure from the Board and external critics would be directed toward concrete project

interventions and not at the more aggregate levels of policy and institutional setting—and thus that project-level EA was more suitable as a risk management tool.

An Action Plan that included recommendations on how some of these obstacles could be overcome was put forward in the Review, but proved difficult to implement in the years thereafter. The key recommendations, which were endorsed by the Board's Committee on Development Effectiveness in 1997, were:

- The Bank would develop financial and other mechanisms to facilitate the early use of sectoral and regional EA.

- The Bank would develop additional, more detailed guidance and training modules on "upstream" EA targeted toward both staff and borrowing countries.

Since 1997, the Bank has made some progress in implementing these actions. There was further guidance development, covering such issues as analysis of alternatives in EA, EA for urban development, and EA of social investment funds. Some training has also been undertaken, both for staff and for borrowing-country counterparts. However, the effort has been piecemeal and scattered rather than systematic, with the important exception that sector adjustment loans were made subject to the Bank's EA policy.

Bank Lending — Increasingly Programmatic and Policy-based

When the Bank's EA policy was originally issued in 1989, including specifications on sectoral and regional EA, the project portfolio was distinctly different from today's. There was a larger percentage of specific investment projects, particularly in infrastructure sectors (energy, transport, mining, irrigation, and water and sanitation), often requiring a full EA (Category A). The main focus of the policy was therefore geared toward undertaking environmental due diligence of these kinds of projects, which were precisely the kinds that had suffered most external criticism during the previous years. There was a relatively small number of programmatic operations involving multiple subprojects, either with a sectoral or an area-wide (regional or spatial) focus. The references to sectoral and regional EA were written with these operations in mind in order to achieve four main objectives:

- Get an "umbrella" perspective of the key environmental and social issues and problems in the sector or region, including institutional aspects
- Recommend improvements at this aggregate level of planning and management in the sector/region
- Consider alternative policy and investment possibilities from an environmental perspective
- Ensure that an orderly process be in place for EA of subprojects, according to standards broadly consistent with the Bank's own.

At the time, the approach taken was in many ways similar to requirements in some states of the United States for programmatic environmental impact statements (see Chapter 3). SEA had hardly emerged as a concept, and the idea of applying EA to policies, plans, and programs was very much in its infancy.

Over the last decade, the portfolio has continued to evolve in a way that increases

the potential utility of SEA approaches. In the realm of policy-based lending, sectoral and structural adjustment loans have been supplemented by the new Poverty Reduction Support Credits, which are likely to become a widely used instrument over the next few years. Although only sector adjustment loans are currently subject to formal EA, there is ongoing discussion concerning what kind of environmental due diligence is most suitable for these policy-based instruments. It should also be noted that a landmark study, *Assessing Aid* (1998), has indirectly influenced thinking with regard to this issue, with its documentation of the lack of impact of conditionality on actual performance. For any proposed policy changes to take hold, whether environmental or otherwise, the chances of success are only reasonably good when the principal counterparts in the borrowing country see the value and relevance of the policy changes and have fully taken part in the process of identifying them.

Environmental Quality Assurance — Shifting Toward Risk Management at Project Level

Over the last three years, Bank policy and procedures with regard to environmental assessment have remained relatively unchanged. Operational Directive 4.01 (1991) was "converted" into the new OP/BP/GP format (World Bank 1999), but with little change in substantive terms. It did lead to somewhat tighter and more explicit requirements for certain types of loans, and for somewhat more specific requirements for information disclosure and public consultation for Category B operations. One change had direct implications for the use of SEA, in that it was made explicit that sectoral adjustment loans required EA, just as in normal investment lending. It can be argued that SEA represents the best way to meet this requirement.

Although Bank EA policy has remained relatively stable, the Bank is undergoing important organizational changes in its approach to environmental quality assurance of its portfolio. Most important is the recent building of a strong central compliance monitoring unit (the Quality Assurance and Compliance Unit, based in the Environmentally and Socially Sustainable Development Vice-Presidency) with a mandate to ensure that Bank operations are in compliance with the environmental and social safeguard policies. Environmental and social project review is still carried out by the environment units in each of the Regions, where the review teams are now often called "quality assurance teams." The singling out of a special set of Bank policies as "safeguard policies"—those that in effect cover the key environmental and social risks—is another sign of the move toward more emphasis on control and compliance.

The Bank has therefore improved its capacity to manage environmental and social risks as these risks emerge in the project portfolio. While this change is certainly a response to clear needs—especially following the 1996 reorganization—it is interesting to note that both the Environment Department's Second EA Review and the independent evaluation of EAs and National Environmental Action Plans (OED 1997) gave rather more attention to other shortcomings with respect to the Bank's use of EA. In particular, these studies documented that *modest progress had been made in terms of using EA to proactively influence*

strategic decisions (for example, at the sectoral level) and the actual design of projects. It appears that little has changed in the last three years in these regards. It may even be that the renewed emphasis on risk management in the form of compliance monitoring has drawn attention away from challenges and opportunities more upstream in the project cycle. On the other hand, it is clear that the Environment Sector Board is fully aware of this possible tradeoff. The fact that SEA has evolved considerably at the international level in recent years (see Chapters 2 and 3) only underscores the importance and timeliness of this effort.

SEA in the Bank — Recent Trends

According to information made available by the various Regions, there have been about 20 Bank lending operations subject to sectoral or regional EA (or some kind of "strategic" environmental analysis) in the period FY1997–2001. Table 5.1 provides an overview of projects for which information was available during the review. This figure does not include projects currently under preparation. Nor does it include environmental analyses undertaken outside the context of lending operations.

Four of the projects were classified in Category A, and 13 in Category B. As many as five of the projects submitted by the Regions were classified in Category C. There were seven projects in South Asia (five in India alone), six in East Asia, four in Latin America and the Caribbean, two in Europe and Central Asia, two in Middle East and North Africa, and one in Africa. The projects were distributed in six sectors: roads, water supply, water resources management, urban development, power, and mining.

Only two projects were subject to a clear-cut regional EA. One was defined as an "umbrella EA" and had elements of both sectoral and regional EA (Bali Urban Infrastructure Project, Indonesia). The rest were defined as sectoral EAs, or were—in different ways—referred to as environmental analyses at the sectoral level. For some of the projects, this analysis appears to be limited in scope and carried out by Bank staff.

The Bank's experience with SEA can usefully be placed in the figure first presented in Chapter 2, as shown in Figure 5.1. It should be noted that the examples provided are but a few recent cases drawn from a much higher number of Bank-financed projects and programs with SEA. It should also be noted that a vast majority of Bank SEAs would fit under the "programs" column as sectoral and programmatic assessments.

New SEA Initiatives

A number of new SEA initiatives are now under way, in part triggered by a renewed attention to SEA at both staff and management levels. The new Bank-wide Environment Strategy (ENV 2001) makes SEA a central instrument for moving toward sustainable development in the years ahead, and some additional funding has been provided to support Regions in implementing SEA. An early step in the implementation of the Environment Strategy will be to prepare an inventory of ongoing or planned SEA activities.

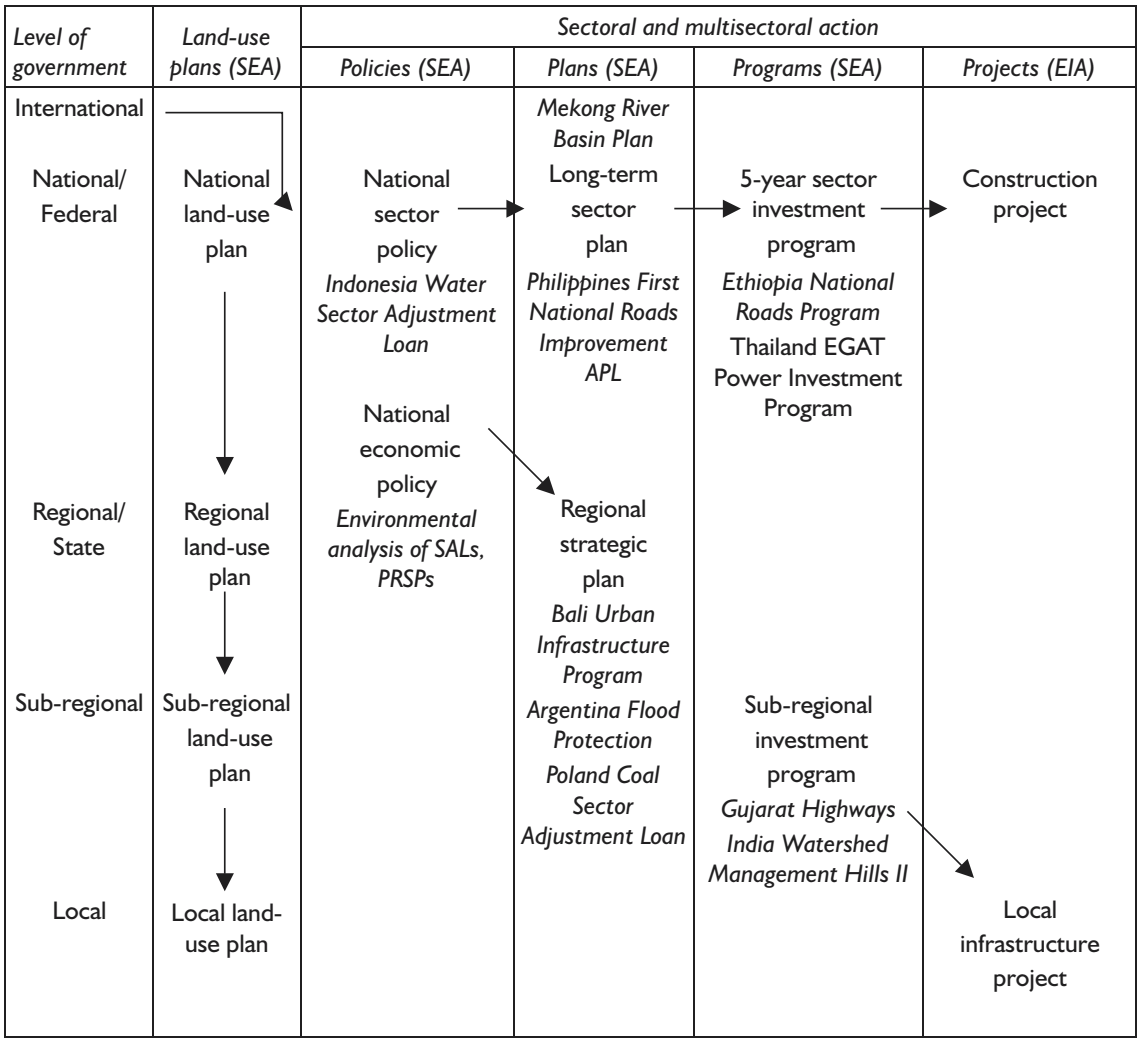
Key Lessons from SEA Experience

Appendix B provides a selection of recent Bank SEA experiences.[6] The cases illustrate

Table 5.1. Examples of SEAs in World Bank operations, 1997–2001

Region	*Country*	*Project name*	*Fiscal year*	*Major sector*	*EA Category*
AFR	Ethiopia	Road Sector Development	1998	Transport	A
EAP	Indonesia	Water Sector Adjustment	1999	Water	B
EAP	Vietnam	Mekong Delta Water	1999	Irrigation & drainage	B
EAP	Thailand	EGAT-Investment Program Support	1999	Power	C
EAP	Vietnam	Water Resource Management	1999	Natural resource management	C
EAP	Philippines	First National Roads Improvement	2000	Transport	A
EAP	East Asia	Mekong Water Utilization	2000	Natural resource management	C
ECA	Russia	Coal Secal II	1998	Mining	B
ECA	Poland	Hard Coal Secal	1999	Mining	B
LAC	Guatemala	Private Participation in Infrastructure TA	1997	Infrastructure	B
LAC	Argentina	El Nino Emergency Flood Project	1998	Urban	C
LAC	Argentina	Water Sector Reform	1999	Rural water supply and sanitation	B
LAC	Venezuela	Venezuela Power Sector Reform	2001	Power	B
MNA	Egypt	National Drainage	2000	Irrigation & drainage	C
MNA	Tunisia	Water Sector Investment	1999	Water	
SAR	India	State Highways I(AP)	1997	Transport	B
SAR	India	Watershed Management Hills II	1999	Agriculture	B
SAR	Nepal	Road Maintenance and Development	2000	Transport	A
SAR	Bhutan	Urban Development Project	2000	Urban	B
SAR	India	National Highways III Project	2000	Transport	B
SAR	India	Raj Water Sector	2001	Agriculture	A
SAR	India	Gujarat State Highways	2001	Transport	B

Figure 5.1. Examples of Bank SEAs in relation to international SEA typology



different aspects of good practice in the SEA area. They also share the common feature that they have all been prepared in response to the Bank's Operational Policy on Environmental Assessment (OP 4.01). In other words, the Bank and borrowers have agreed in all these cases that doing a sectoral or regional EA was the most appropriate way of complying with the OP. In parallel, the Bank has undertaken or supported sector studies and other types of analysis that can also qualify as SEA, but that have been undertaken independently of the EA Operational Policy. This includes, for instance, the Energy and Environment Reviews financed under the Energy Sector Management Assistance Programme (ESMAP).

Many SEAs are modest in scope

Most Bank SEAs are undertaken as part of preparing programmatic loans, designed to finance subprojects over a certain period of time. Hardly any have been undertaken during the earliest discussions to define the scope and objectives of a plan or program. Rather, they get under way either when the general plan or program has been set out (but before specific subprojects have been identified) or when a final plan or program has

been defined with details of proposed subprojects, sites, and so on. Judging from their Terms of Reference, most Bank SEAs usually have two overriding purposes:

- Establish a sufficiently robust framework for environmental impact assessment at the subproject level to ensure that subprojects will comply with Bank safeguard policies
- Identify any significant environmental (or social) issues related to the loan or the sector and jurisdiction in question that would require a policy or institutional response—above the subproject level—in order to be addressed.

In practice, the actual SEAs typically have focused more attention on the first of these objectives while being less effective in identifying and assessing aggregate environmental concerns. In other words, the real strategic element is rather limited in most cases. This could suggest that many borrowing countries are not prepared to undertake EAs that raise truly strategic issues. It may also be a result of limited ambitions on the part of the Bank and a desire to meet rather than exceed environmental requirements.

There are, however, enough positive exceptions in the "SEA portfolio" providing sufficient proof that SEA is a tool of great potential, going much beyond the two objectives cited above. Moreover, the experience of Energy and Environment Reviews and other environmental sector work point in the same direction.

Sufficient baseline data can be generated at low cost

Different SEA cases reveal a variety of approaches to data gathering, with different implications for the amount of time and resources needed. In general, however, experience to date confirms the expectation that, at the strategic level, there is limited need for data collection through time- and labor-intensive methods (such as surveys).

The Ethiopia case demonstrated qualified use of secondary information sources. Any uncertainties regarding accuracy were checked out through site visits and consultations with local people and experts. The Bali case offers a good example of how to gather, organize, and present data for strategic decisionmaking. Rather than spending time trying to fill the gaps in some of the data, existing data were used to develop and map environmentally sensitive zones. Subsequently, the EA used map overlays of subproject types to highlight the sensitivity of specific zones to different kinds of subprojects. Other SEAs in the Bank have used detailed case studies from some sites or subprojects as a basis for projecting environmental impacts and risks for several locations subject to similar project activities.

Through systematic collection and analysis of baseline data, some SEAs have greatly reduced the need for further baseline data collection for subprojects.

Integration of socioeconomic aspects is improved

International experience and a number of Bank SEAs seem to confirm that SEA is indeed better placed than project-specific EA to assess environmental, social, and economic aspects in an integrated fashion. At the strategic level, there are simply more opportunities for influencing and shaping the development of proposals toward a greater

balance of economic, social, and environmental objectives. A constraint to date has been that some SEA Terms of Reference have limited the scope to environmental aspects.

Assessing cumulative impacts is still a challenge

The inability to assess cumulative impacts of multiple activities is an important shortcoming of project-specific EA. This problem has fueled the arguments for making more use of SEA, as discussed earlier. However, most Bank EA work labeled as sectoral or regional EA has by and large not succeeded in addressing cumulative impacts any better than project-specific Eas do. There has been a tendency to focus on setting up subproject EA routines and requirements rather than addressing overarching impacts and comparing strategic alternatives.

Disregarding SEA as a useful instrument on the basis of that experience would miss the point. Rather, the experience to date is a powerful reason for sharpening the criteria for what SEA really is and to raise ambitions. A few Bank SEAs show that it can indeed be done. In the Bali case, the SEA itself could not assess cumulative impacts, since subprojects had not yet been identified. However, a key recommendation of the SEA was to have a cumulative impact assessment done in parallel with implementation of the investment program, as part of the process of identifying and preparing subprojects. A regional EA for a large flood protection program in Argentina provides a good example of identifying, assessing, mitigating, and monitoring cumulative impacts.

Analyzing alternatives becomes more viable

Most project-specific EAs fall short when it comes to comparing alternative siting, designs, or technologies. Experience to date with SEA suggests that they are a much more effective means for options assessment, which is precisely one of the reasons SEA was developed in the first place. Although many Bank SEAs pay insufficient attention to alternatives, they still appear to do a much better job on average than EIA. Some SEAs consider alternative policies, laws, and regulations and propose changes on that basis. Others analyze the implications of different structural interventions at the overall program level (flood control versus floor protection measures, for example, or hydropower versus fossil fuels). Yet others provide options in terms of criteria for selecting different kinds of subprojects.

The nature and extent of public consultation is a critical variable

Public consultation in the context of an SEA clearly needs to be different from the "normal" case of EIA. It has often been alleged that public consultation at the level of policies, plans, and programs simply becomes too complex, sensitive, and aggregate in nature to be viable. The problem is often phrased as a question: Who should you consult with if the "affected community" is the entire population of a country or a province? Or, how do you explain to ordinary people the complex cause-and-effect relations between economic policy decisions and the environment?

International and Bank SEA experience to date suggests that these questions are missing a key point when it comes to public consultation, namely that SEA in essence is a consultative and iterative process (unless desk reviews or empirical studies based purely on

research are considered forms of SEA). Dialogue and exchange among a variety of stakeholders are central features determining whether most SEAs will succeed at all. A principal challenge is therefore to design an appropriate, tailor-made consultation strategy at an early stage, allowing representatives of relevant stakeholders to take part in the SEA process in a meaningful way and providing general information to the public at large at appropriate points in the process.

Bank experience shows that the quality of consultation processes has often been decisive in determining the usefulness of SEAs in influencing outcomes. Among the SEAs reviewed in Appendix B, the Indonesia Water Sector Adjustment Loan and the Bali Urban Infrastructure Project illustrate this point most clearly. In both cases, the consultation and dissemination strategies were well thought out from the outset and were instrumental in generating consensus around key policy or investment components.

SEA may limit the need for subproject EA work

When executed well, SEA has reduced the scope and need for EA at the level of subprojects. This is an important finding, which suggests that SEA may be a cost-effective instrument not only in improving the environmental (and social) quality of many plans and programs, but also in terms of limiting the time and resource expenditures associated with project-specific EA downstream. This finding is operationally relevant to the Bank and its clients, given the constrained resource situation when it comes to EA work.

Well-executed SEAs tend not to eliminate the need for downstream EA work but rather to eliminate the subprojects that would be most problematic from an environmental or social perspective, thus reducing the number of specific EAs required and the general scope and complexity of others. SEAs also generate information that subsequent EIAs can use, thus saving both time and money. In the case of the Argentina Flood Protection Project, the SEA reduced the number of possible subprojects from 150 to 51, based on environmental, social, and economic criteria. The cost savings from avoided EIAs were substantial.

All this said, it may also happen that an SEA identifies sensitive environmental issues associated with certain sites and project types that might otherwise not have been realized in time. The SEA may thus lead to EIA in situations where the need might otherwise have been ignored. This ought to be considered an added benefit of SEA, however—not a cost.

Institutional issues are addressed more credibly

Bank sectoral and regional EAs are more focused on policies, on laws and regulations, and on institutional frameworks than project-specific EAs. This should indeed be expected, given that SEAs are tied to policy-oriented and programmatic lending instruments at the sectoral or regional level. This is not to say that all Bank SEAs do a good job assessing policies, legislation, or institutional set-ups, but, again, there are some examples of good practice. Some succeed in pinpointing conflicts and gaps in the environmental management in a region or sector, including problems that may stem from broad public-sector management deficiencies rather than

from the environment side as such. Others provide a good roadmap for strengthening institutions and improving regulations. A recent SEA for the Colombia water supply and sanitation sector proposed a number of changes in laws and regulations that would contribute to both improved service delivery and reduced environmental and health impact.

Sector-Specific Experiences Relevant to SEA

Over the years the Bank has initiated or been involved in an impressive range of environment-related sector studies. Some of these have contained elements similar to what can be seen in some of today's SEAs. Others have spearheaded methodology of direct relevance to SEA. Interesting examples are found in the energy, urban, and water sectors.

Energy sector

In the energy sector, the Bank has recently launched Energy and Environment Reviews (EERs) as a strategic assessment tool. This work is based on years of effort to develop environmentally sensitive assessment and planning tools for the sector, and also on analytical work on energy and climate change. Outside the Bank, the World Commission on Dams (WCD) and the International Energy Agency have independently issued proposed principles and guidance for hydroelectric and other major dams, both with a strong emphasis on strategic assessment.

Energy and environment reviews

Energy and Environment Reviews were conceived as an extension of traditional Bank energy sector work in order to address the cross-sectoral environmental impacts associated with energy production and consumption. Through an upstream analytical focus, EER work aims to:

- Ensure that fuel and technology choices are considered before they are "frozen" in specific project designs
- Maximize cost-effectiveness by examining pollution prevention and reduction options across the fuel supply and consumption chain, complementary to mitigation and end-of-pipe solutions
- Expand local participation and capacity building among analysts and decisionmakers.

To date, some 30 initiatives have been completed or are under way globally. Some have covered broad, overriding sector policy issues while others have targeted specific challenges in a subsector, such as fuel quality for transport or energy efficiency in housing. These more specific studies have been in greater demand in client countries than the broader analyses. They differ from more traditional economic and sector work by bringing the environment in as a key variable in assessing different policy options. Many EERs have taken a scenario approach, for instance comparing the environmental consequences of policies that are, in essence, business-as-usual, liberalization and efficiency-oriented, and mitigation-oriented in terms of actively limiting pollution.

Being part of the ESMAP program, the EERs have not been tied directly to Bank lending and have drawn largely on bilateral donor contributions. In fact, it was strong donor support that made it possible to initiate the

EERs as part of ESMAP's increased emphasis on energy-environment linkages. It is unlikely that borrowers would be prepared at this stage to finance such studies as part of their lending from the Bank.

Hydropower and dams

Hydroelectric dams and irrigation schemes have received much attention in recent years as an area requiring more and better environmental and social work. The considerable controversy around a number of projects over the last two to three decades has generated a demand for new and better approaches, geared toward more strategic and participatory analysis, planning, and policymaking. The World Commission on Dams addressed the range of environmental and social issues associated with large dams based on worldwide experience over the last several decades, and provided a rich analytical and planning menu to draw from. A key recommendation to multilateral financial institutions was to "accelerate the shift from project to sector-based finance, especially through increasing financial and technical support for effective, transparent, and participatory needs and options assessment, and the financing of non-structural alternatives" (WCD 2000).

The Bank, in commenting on the WCD, has concurred with the need to promote the strategic priorities set out in the WCD recommendations and has committed to supporting strategic planning processes by borrowers to enhance the evaluation of options and alternatives concerning water and energy.

The International Energy Agency issued guidelines for hydropower development and environment in May 2000. These were based on extensive analysis across experience globally, and identified the following five areas as posing significant challenges to the hydropower sector:

- Energy policy framework
- Decisionmaking process
- Comparison of hydropower project alternatives
- Improved environmental management of hydropower plants
- The sharing of benefits with local communities.

For each of these challenges, the guidelines provide detailed recommendations. The first recommendation, on the energy policy framework, calls for comparative environmental analysis of power generation options and decisionmaking on the basis of informed public debate and consensual approach.

The guidelines call on governments to consider SEA as a planning tool at the national energy policy level.

Urban sector

A few years ago the Bank issued EA guidance on *Assessing the Environmental Impact of Urban Development* (World Bank 1997). This guidance advocated a strategic regional (spatial) assessment approach, and offered a number of specific analytical tools to meet a variety of needs. Most of these tools had not come from the EA field as such but had been adopted from a variety of disciplines and modified to the urban setting by Bank urban specialists. Examples included participatory rapid appraisals, urban environmental audits, and health risk assessment. These are techniques and tools that can be modified further

and combined in a number of different ways, thereby enriching the field of SEA.

Water sector

In the water sector, important progress is taking place in advancing integrated water resource management at the levels of river basins, watersheds, lakes and reservoirs, and shared seas (such as the Baltic Sea and the Black Sea). Several water sector studies have been undertaken that fit criteria for SEA. One example is the Water Resources Sector Review in Vietnam (1996).

The water sector illustrates the critical importance of moving more effectively upstream than project-specific EA normally allows. According to the Bank's Water Resources Management Policy Paper, the water sector in developing countries is facing the following "key threats:"

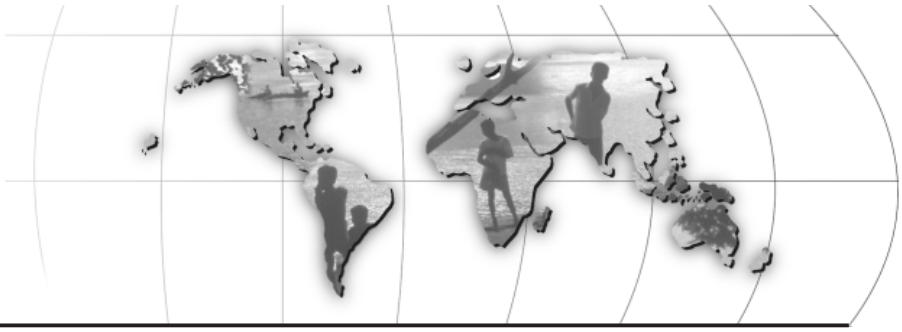
- Urbanization
- Excessive regulation, abstraction, and pumping
- Pollution of surface and ground water and degradation of water quality
- Loss of wetlands and freshwater biodiversity
- Poor land use
- The introduction of alien and exotic species, including invasive weeds
- Interbasin water transfers.

What all these threats have in common is that they cannot be addressed either solely or primarily at the project level. There are fundamental policy and planning challenges to be tackled if countries are to make real progress. By the time project-level EA studies are under way, the key decisions have for the most part been made.

Looking to the future, the Bank will work with borrowing member governments to support several important transitions in water management. These include, among other things:

- Integrating water sector development and management, with a balanced focus on both investment needs and institutional management improvements
- Strengthening national capacity for water resources management and strengthening cross-border cooperation of shared water resources
- Generating financing of water resources infrastructure through public-private partnerships.

SEA is identified as one of the potentially most useful tools in achieving these transitions.



Chapter 6

Mainstreaming SEA in the Bank — Elements for a Road Map

This chapter explores some issues facing the Bank as it considers its future use of strategic environmental assessment (SEA). The recently approved Environment Strategy, *Making Sustainable Commitments* (2001), places SEA as one of the Bank's key tools for enhancing the environmental dimension of its policy dialogue and the quality of its lending programs.

The Bank and SEA — A Leadership Role?

In the late 1980s, the Bank introduced requirements for environmental assessment (EA) of its investment lending operations, moving the institution to a position of leadership—at least within the context of multilateral development finance. One of the elements that placed the Bank on the cutting edge—even compared with most industrial countries—was the inclusion of instruments that later were defined by international environmental assessment practitioners as "strategic"—namely sectoral and regional EA.

While documenting some problems, shortcomings, and dilemmas, both the First (1992) and the Second (1997) EA Reviews showed that the Bank had successfully operationalized its EA policy and that it was influencing the project portfolio in a number of ways. Moreover, experience accumulated rapidly and learning took place. Other development finance institutions adopted EA policies and procedures similar to those of the Bank. Borrowing countries in turn adopted EA legislation that often mirrored the Bank's and other donors' requirements. In many ways, the Bank helped shape the evolution of EA as a planning tool in the developing world throughout the 1990s.

One area where the Bank clearly took a lead role, at least initially, was in spurring the use of SEA in the form of sectoral and—to lesser extent—regional EAs. However, although there were a few innovative and effective cases of "good practice" that demonstrated real value for the money, on balance the results did not quite meet expectations (World Bank 1997a). First and foremost, the total "case load" was limited. Few operations were subject to sectoral and regional EAs. Second, many of the sectoral and regional EAs did not quite meet expectations established by Bank guidelines. The situation was somewhat paradoxical: the Bank did more than any other development institution to introduce, use, and develop SEA,

but the Bank's environment staff and many external observers felt that much more could and should have been done. After all, few if any other institutions work as extensively as the Bank above the specific project level.

Since 1989, there has been limited substantive change in Bank policy and practice in the EA area, although other environmental and social policies (safeguard policies) increased the "pressure" on the EA process to ensure compliance across a broad range of complex and interconnected issues. In the meantime, the EA field has evolved considerably outside the Bank—not least in the area of SEA.

Budget pressures affected the levels of nonlending activity and influenced opportunities across several priority areas for the Bank, including operational EA work (review and support functions) and EA-related nonlending activities (such as training). The same pressures probably also constrained the opportunities to broaden the use of SEA in relation to sector work.

Moving forward in making broader and better use of SEA requires a basic understanding of the internal and external factors that may influence the Bank in this area. Table 6.1 gives an overview in this regard. Most of the factors listed have been mentioned explicitly by Bank staff in interviews.

Menu of SEA Approaches

This section presents in short form a menu of promising SEA approaches that have been developed in recent years and used by aid organizations in developing and industrial countries. The aim is to extract elements that could be of relevance to the Bank. None of the approaches can be meaningfully blueprinted for the Bank's own purposes, but concrete ideas and methodology elements can be used as a point of departure. More detailed descriptions of some of the different approaches are contained in Appendix C.

Table 6.2 sums up important elements of some SEA approaches: the Environmental Overview (EO), the Dutch E-test, the South African SEA approach, the Quick Scan, Strategic Environmental Analysis (SEAN), and Analytical Strategic Environmental Assessment (ANSEA). We tentatively place the different approaches along a vertical continuum in the table depending on the assumed costs of carrying out the different assessments. This is, of course, a simplification, but it gives an idea of how complex and comprehensive the different approaches are.

All the approaches have been developed recently, and ANSEA is part of a large EU research program yet not finalized. Only the EO and the SEAN have been developed for application in developing countries in particular, while the ANSEA aims for a methodology applicable for all types of countries. The E-test and the Quick Scan approaches contain elements of importance for SEA application also in developing countries. A key issue will be the extent and ease with which any of these approaches can be adapted for use in Bank client countries.

Steps Toward Mainstreaming — A Structured Learning Approach

The Bank's new Environment Strategy (ENV 2001) contains a strong policy commitment to developing SEA as a mainstreaming tool. Table 6.3 summarizes how the strategy sees

Table 6.1. Factors that may influence broad adoption of SEA in the Bank

External factors		*Internal factors*	
Constraints	*Enabling factors*	*Constraints*	*Enabling factors*
General methodological uncertainty: "new science"	Methodological developments occurring in several countries	Limited SEA capability among Bank environmental specialists General resource/time pressures give small room for innovation, training	More experience in some Regions Strong interest and willingness to learn among Bank environmental and social specialists
Limited borrower capacity for SEA	Growing international case load of good practice	Limited appreciation of potential benefits of SEA among task and country managers General resource/time crunch gives small room for innovation, training	Growing case load of sectoral EA in the Bank (plus a few regional EAs) QACU/WBI will offer training in SEA
Almost no client countries have SEA requirements Limited borrower willingness to subject sensitive policy issues to EA, consultation, and so on Other donors are sometimes against taking a comprehensive approach, in order to protect "their piece of the pie"	SEA is becoming mandatory in growing number of countries, EU Work on UN protocol to start	SEA is generally not a Bank requirement, although OP 4.01 "urges" its use There would be strong operational resistance against making SEA a mandatory requirement Available guidance not sufficiently detailed or accessible?	SEA a central tool in the new Environment Strategy of the Bank EA Sourcebook & Updates provide some guidance on sectoral and regional EA Work under way on "EA" policy/guidance for adjustment lending Analytical work similar to SEA under way in some sectors (energy, water)
Borrower resource constraints: Generally no budget allocations for SEA	European donor countries have interest in developing/spreading SEA Cases suggest SEA can help avoid costly alternatives	Limited internal resources for SEA to date Trust Funds cannot normally be accessed for SEA Lack of rewards for integrating environmental concerns upstream Increased costs of noncompliance focuses attention downstream: focus on safeguards, at the project level	Increased costs of noncompliance downstream could help shift more resources and attention upstream Cases suggest SEA can help avoid costly alternatives
Potential NGO opposition against perceived "watering down" of Bank EA requirements through "quick and dirty" SEA	Many NGOs will welcome a move upstream as long as project-specific EA is not "watered down"	To date the Board has not pressed for mainstreaming of SEA (although this may have changed)	Board has approved Environment Strategy Board will expect the Bank to be up-to-speed with international standards

Table 6.2. A cross-section of SEA approaches

Costs	*Approach*	*Used by*	*Key elements*	*Areas of use*	*Effects considered*	*Key strengths*
Low end	Environmental Overview	UNDP	A set of structured questions about the proposed (development) policies, plans, and programs (PPP) are posed Questions are answered through an interactive process involving a broad set of stakeholders and fed back into redrafting of PPP proposal Process results in a short EO document	All PPPs and sectoral analyses	Economic, social, and environmental	Flexible, simple, may take short time, interactive process, proactive in focusing on PPP at formulation stage Used and refined in developing countries
	E-test	Dutch Government	E-test developed for policy legislation which falls outside the EIA procedures for sectoral plans and programs (for example, for reasons of confidentiality) A help desk to coordinate assessments set up, number of assessment questions kept low, linked to decisionmaking process	Policy legislation	Environmental	A system that stimulates, not forces, departments to make good assessment of legislation, through being client-oriented, selective (that is, focusing on the essentials), and easy to integrate in existing process for developing new legislation
	The South African Approach	South African Government	SEA guidelines developed, focusing on the effects (constraints) of the environment on development, rather than the other way around. SEA in SA is context-specific, integrated, and sustainability-led	Plans and programs	Economic, social, and environmental	Proactive and innovative in integrating sustainability into plans and programs Self-regulatory and flexible
	"Quick scan"	Dutch Government	Ranking a set of investment plans into a solid plan, possibly a solid plan but requiring improvements, or a weak plan (criteria of legitimacy, benefits, cost-effectiveness, risks and alternatives of reaching policy goals)	Public Investment plans	Economic, social, and environmental	Method directly linked to the policymaking process Assesses potentially important synergistic effects for combinations of investments
	Strategic Environ-mental Analysis	AIDEnvironment/ SNV (the Netherlands)	Analytical framework has four clusters: environmental context analysis, problem analysis, opportunity analysis, and strategic planning Participatory assessment process	All PPPs	Economic, social, and environmental	Holistic development perspective; focus on developing countries Well-developed process/analysis framework Participatory and proactive process
	Analytical Strategic Environ-mental Assessment	EU-funded research program covering eight European institutions	Takes the understanding of decisionmaking processes as point of departure; integrates environmental values into these processes through a flexible and adaptive SEA approach Methdological ANSEA framework currently under development through case applications	All PPPs	Environmental	High focus on decisionmaking processes, and how ANSEA can influence decisionmaking Flexible to different decisionmaking models in both industrial and developing countries Strong analytical basis
High end						

SEA implementation over the next few years. The following sections discuss some issues that may be considered in preparation for such mainstreaming.

Pros and cons of introducing SEA requirements

Annandale and colleagues argue for introducing a Comprehensive SEA System in multilateral development finance (Annnandale et al. 2001). They view SEA as more of an overall "program-wide administrative process" to improve decisionmaking at all policy and programming levels rather than as a "tack-on to the existing program cycle" or a set of evaluation tools and techniques.

The principal advantage of introducing concrete policy and procedural requirements for SEA is precisely that it triggers a Bank-wide response. However, the first and most fundamental problem with a wholesale regulatory approach is that SEA is not yet, even according to many of its most prominent advocates, a discipline sufficiently mature to justify regulation in policies and procedures. SEA has evolved enough—as a menu of possible approaches—to prove its utility and above all its future potential. What is needed now, both internationally and in the Bank, is testing and learning through the application of various forms of SEA to different operational and country contexts. In fact, introducing an SEA policy requirement too early could undermine such a learning process, both internally within the Bank and in its relations with borrowing member countries.[7]

Just as important is the principle of partnership, above all with borrowing-country governments. A command-and-control approach by the Bank is not likely to produce a constructive climate for developing SEA in a collaborative way with an emphasis on learning. SEA is by nature a much more consultative and political process than project-level EA, involving stakeholders both at central policy levels (government ministries, national assemblies, and so on) and in civil society. A forced approach from the outside is far more likely to cause problems in an SEA context than at the project-specific level.

Learning by doing— Pros and cons of an "ad-hoc" scheme

This option closely resembles the approach of the last several years. SEA has been tried out in different operational contexts wherever the Regional Environment Units have been able to make the case, funds have been available, and

Table 6.3. SEA implementation according to Environment Strategy

Action area	*Medium term*	*Short term*
Use SEAs more systematically to address environmental concerns early in sectoral decisionmaking and planning processes	Undertake a structured learning program on SEAs, including the development and dissemination of good practice based on about 10–20 SEAs Use SEAs regularly as a tool for upstreaming environment into policy dialogue and improving the quality of sector operations Integrate the findings of Energy and Environment Reviews into project and program design	Commence a series of priority SEA studies Undertake Energy and Environment Reviews as part of implementing Fuel for Thought Develop and disseminate methodologies, procedures, and guidance for SEA application

there has been acceptance on the part of the country team and the borrowing country. However, more can probably be done to promote the use of SEA, offer training, and take advantage of the current interest in the topic throughout the Bank. The main disadvantage is that this voluntary, ad hoc approach seems to be inadequate to respond to internal and external demands for more systematic approaches to mainstreaming environment.

Past experience suggests that something more ambitious is needed than a purely voluntary approach. While the Bank took the lead in the late 1980s and early 1990s in piloting some SEA approaches (particularly sectoral EA), the Bank can hardly be considered in the lead today. This is despite the fact that no other development institution is as active as the Bank in the areas of policies, plans, and programs.

Structured learning — The advantages of a pilot program

There is a logical argument for a structured and strategic program to test and demonstrate a range of promising SEA approaches in a variety of country, lending, sectoral, and spatial contexts. Learning, dissemination, and discussion should be an integral part of such a program, both within the Bank and with client countries involved in it.

The Bank may still be criticized by some for not moving immediately toward establishing SEA requirements, but a pilot program would certainly be considered by many a more adequate response than a business-as-usual approach (that is, a voluntary scheme). No doubt, most borrowing member countries would find a pilot scheme far more acceptable than new environmental requirements.

Even the world's leading SEA specialists are broadly in favor of well-designed pilot schemes at this point in time rather than imposing SEA requirements on resisting governments. Many may be advocating adoption of SEA regulations in industrial countries, where there is a much higher degree of in-country acceptance in government as well as civil society, but they tend to view imposition of requirements in developing countries as counterproductive. The same goes for development finance institutions, which are owned not only by industrial countries but just as much by their borrowing members.

In order to be credible, the pilot program would have to be relatively large, in the sense of covering a set of countries in all regions, all relevant lending instruments, all the key environmentally and socially sensitive sectors, and a range of different SEA approaches. On the basis of accumulated experience over three to five years, the program should result in clear recommendations on:

- The Bank's longer-term approach to SEA, including policy and guidelines
- The kinds of SEA instruments that are useful in different operational contexts and
- The demarcation of lending instruments and sectors that benefit from SEA versus those that do not.

Needless to say, only those forms of SEA that are found to be viable and useful should be taken forward. There needs to be assurance that SEAs can be made flexible and well

designed so as to avoid unnecessary bureaucratic procedures and obstacles for good projects downstream.

Criteria for Designing a Pilot Program

The pilot program should cover the range of promising SEA approaches, as discussed elsewhere in this paper. Key sector and country selection criteria for pilot SEA activities are presented here. They are merely suggestive and intended as a loose guide to further discussion.

Country selection criteria

- Interest and commitment to undertaking SEA
- Interest in developing SEA guidelines at the national level
- Existing environmental analytical capacity, including in the EA area
- Possibilities for staging a consultative, open process
- Willingness to cover at least some of the cost
- Contribution to regional balance in the pilot program
- Degree of donor interest.

Sector selection criteria

- Sectors with significant environmental and social sensitivities
- Sectors with real or perceived tradeoff issues between environmental, social, and economic concerns
- Sectors where improved environmental performance could have significant positive effects beyond the direct environmental benefits (such as by creating new economic opportunities or improving health)
- Sectors in which policymakers and decisionmakers have interest and commitment to undertaking SEA
- Sectors with the greatest potential for learning
- Contribution to sectoral balance in the pilot program
- Sectors providing opportunities for spatially defined and transboundary (regional) SEA approaches.

It would appear that the following sectors are particularly relevant in terms of piloting SEA: energy, water and sanitation, transport, urban infrastructure, and rural development. Industrial infrastructure and mining operations (mostly under International Finance Corporation and Multilateral Investment Guarantee Agency financing) may also in some instances be relevant, depending on the size of projects.

Key Issues for Consideration

Finally, it is recommended that a number of issues be considered, as they will influence the shape and form of a pilot program of SEA. The issues include:

- The role of SEA for improving compliance with Bank safeguard policies
- Whether to emphasize lending or nonlending contexts for testing SEA
- Whether SEA should incorporate assessment of social aspects of PPPs
- The steps that need to be considered in order to make SEA an attractive option for Bank clients and operational staff and
- How SEA might contribute to other development policy agendas, such as poverty alleviation, governance, and participation.

What can or should SEA address?

A narrow focus on using SEA to support compliance in the context of Bank lending programs might help reduce risks and controversies surrounding individual projects. If the objective is cast a broader net, however, and to move development in the direction of sustainability, then the pilot program would emphasize learning not only in the lending program but also in a number of nonlending contexts. Furthermore, capacity building in borrowing member countries would become more important.

The social agenda — Integration or "Parallel Track"?

The relationship between environmental and social assessment has been subject to much debate over the last several years. The debate could easily repeat itself when it comes to SEA. Few will dispute the need for taking not only environmental but also social aspects into consideration, whether at the project or the strategic level of policies, plans, and programs. The key issue is how it is best and most efficiently done: by integrating the two into something that might be called, for example, "strategic environmental and social assessment" or by creating two parallel tracks.

This issue is perhaps less critical in a pilot program context than it would be were the Bank to issue a new policy requirement for strategic assessments. In a pilot program, there ought to be room for different variations on the same theme of informing strategic decisions on the social and environmental consequences and aspects of various policies, plans, and programs. There could be—perhaps should be—some "pure" strategic environmental assessments, some "pure" strategic social assessments, and different kinds of combined assessments. Over time, accumulating experience should provide grounds for informing potential future decisions on how to address both social and environmental aspects in policy and procedural statements on SEA.

The main recommendation is that an SEA pilot program needs to be well balanced to cover both the social and environmental dimensions.

How can SEA be made attractive to clients and operational staff?

An SEA pilot program will only advance to the extent that specific SEA proposals are found to be attractive from the perspectives of borrowing member countries and Bank operational staff (and, in those cases involving the private sector, the companies concerned). The specific proposal therefore needs to make a convincing case that it would indeed provide significant benefits to the specific policy, plan, or progam that it would relate to—benefits that would exceed the costs of undertaking the SEA. Benefits may be provided in the form of reduced environmental or social impacts and risks, in the form of help identifying least-cost options from an integrated economic-social-environmental perspective, or in the form of reduced need for numerous project-specific EAs further downstream. Without providing any reasonable prospects of achieving such benefits, any SEA proposal will be a hard sell. In other words, although learning is a principal objective of a pilot program and this learning should take place across a broad spectrum of SEA approaches, the prospects of real benefits must be clearly visible.

Can SEA benefit other policy areas?

This paper has discussed why SEA may provide added value to the Bank from an environmental and social perspective. However, it may be argued that SEA can in fact support progress across a range of policy areas, such as governance, public participation, and—simply—improved development planning. In philosophical terms, the SEA approach is somewhat reminiscent of the thinking of Amartya Sen, who emphasizes development as the process of expanding peoples' and communities' access to the services and rights that enable them to take control over their own lives (Sen 2000). It also fits well with the directions suggested by the last two *World Development Reports* of the World Bank, with their emphases on empowerment of poor people and communities (World Bank 2000b, 2001).

SEA is an instrument that can make a contribution in these regards, as it is heavily geared toward broad stakeholder involvement, compared with analytical models and instruments that are understood only by the experts themselves. While in the past the environmental profession has tended as much as any other development-related profession to take a somewhat technocratic approach to development, SEA could represent a significant shift. As such, SEA may provide benefits that go beyond the environmental sphere.

Appendix A

Case Examples of Good International SEA Practice

This annex presents two examples of international good practice of SEA, based on EC (1997).

The Irish National Development Plan 1994–99

National Development Plans are high-level interventions, and it is therefore a considerable challenge to carry out SEAs for these types of plans. The SEA could in principle include impacts in many sectors and regions. The Irish National Development Plan and environmental appraisal applies to the whole territory of Ireland.

Background

The Irish National Development Plan 1994–99 is a multiyear, multisectoral regional economic development plan drawn up in accordance with European Union structural funds regulations. Structural funds are grants administered by the European Union applicable to all member states for the development of specified actions, in order to enable their economy to overcome problems of peripherality and to ultimately achieve social and economic cohesion with other member states. The European Commission (EC) requires that regional plans include an assessment of their impact on the environment.

Environmental assessment process

The SEA of the plan was carried out under EC regulation and guided by an informal "*aide memoire*" issued by the Commission. Specifically the *aide memoire* requires that the information arising from the SEA be presented in three sections:

- Description of current environmental situation (baseline)
- Examination of the legal and administrative framework regarding environmental management
- Description of impacts of the plan, focusing on expected changes and possible mitigation measures.

The SEA process for structural funds includes six stages:

1. Preparation of regional plans and environmental profiles
2. Evaluation of the regional plan and environmental profiles by the Commission

3. Bilateral negotiations between the Commission and the member state
4. The completion of a so-called Community Support Framework or Single Programming Document
5. A definition of the forms of intervention
6. Monitoring and evaluation.

The SEA addressed the following environmental issues regarding the current environmental situation:

- Air quality
- Water resources
- Coastal zones
- Landscape and habitats
- Waste management
- Urban environment.

The methodology adopted was basically ad hoc in nature, barely supported by technical and scientific methods and approaches. It resulted, however, from extensive review of existing environmental baseline studies and documentation and also from wide discussions with particular partners and development sectors while developing the National Development Plan itself.

The first SEA Report was prepared by the Irish Department of the Environment and constitutes a short chapter in the National Plan. The second SEA Report was prepared by the European Commission. The development of the SEA was conducted over six months at relatively low cost.

Provisions relating to consultation and public participation

Public consultation is not required by the Structural Funds regulations and was not undertaken formally in this case. The National Development Plan was only made public once it was submitted to the EC for funding approval. This prevented any formal public consultation and discussion of planning development options and their environmental impacts, except with the government development sectors that were actually developing the National Plan. However, following the publication of the plan, a number of seminars were held. The purpose of these was twofold:

- To provide information on the EU Structural Funds and raise awareness on their environmental implications among partners
- To promote dialogue and partnerships between governmental authorities, environmental organizations, trade unions, other economic stakeholders, and community stakeholders.

Integration of environmental information and consultation findings into the decisionmaking process

The SEA was developed in a way that was intrinsic to the process of Plan development. The first SEA Report was prepared simultaneously with the Plan, benefiting from various round tables for discussion and interaction between different development sectors, hence influencing the way decisions were being prepared and made.

Overall evaluation

- The European Union legal framework on the Structural Funds is proving to be quite effective in requiring that environmental issues are integrated in development proposals at policy and program levels.
- The integration of the SEA and Plan development is seen as a key methodological aspect that enabled a more effective

outcome. However, it lacks a more consistent support on assessment methods and techniques.
- Although still to be seen in terms of effectiveness, Monitoring Committees represent at least a key mechanism to ensure a follow-up process.
- Compared with other "good case" SEAs evaluated in EC (1997), the Irish National Development Plan rates around average along the important dimensions of the role of SEA and compliance with basic SEA requirements. As to the role of the SEA, it is seen to be proactive and facilitates the implementation of sustainability, but does not address alternatives or cumulative effects. Among basic SEA requirements, the Irish SEA "violates" initial scooping of impacts.

Policy Plan Drinking Water Supply, the Netherlands

The second case is also based on the evaluation of good practice SEA cases conducted in Europe (EC 1997). The Netherlands is at the front of SEA development and practice in the world, and the following case is a good example of a well-conducted SEA in the water sector.

Background

In the Netherlands, water supply is the responsibility of regional Water Supply Companies, which are organized into the Association of Water Supply Companies of the Netherlands. Their permit applications will be verified by provincial water management policy. Provincial policy, in its turn, must comply with national policy. The task of the Ministry of Environment is to ensure a sufficient, safe, and sustainable water supply.

In 1990, the Ministry started on a third water supply policy, called BDIV. Some of the BDIV's main targets and decisions are:

- Sustained priority for production of sufficient drinking water of good quality
- Enforcement of quality assurance and environmental management systems and procedures during production and distribution
- Curbing the increase of water demand in order to reduce the environmental impact of water supply
- Avoidance of natural areas in site selection to minimize the impact of land use and soil dehydration
- Revision of the formal planning system for water supply.

The preparation of an SEA was required by the EIA Decree (under the Environmental Management Act). The area likely to be affected by the BDIV is most of the Netherlands. The environmental problems related to water supply are mainly soil dehydration and land use by water production facilities.

The environmental assessment process

Screening was performed by using a positive list of activities requiring environmental impact assessment (EIA). The objective of the SEA was to provide the environmental information that the decisionmaker needed to make a decision about the BDIV.

The scope of the SEA evolved through the procedure. The final scope included:

- *Alternatives* for the BDIV: the unchanged policy alternative, the preferred alternative, and "the most environmentally friendly alternative"

- Assessment of *environmental management systems* of existing (or planned) operations
- *Scenarios* for new projects: the application of certain water resources, production, and treatment systems and the estimation of impact on soil dehydration and biodiversity, resource depletion, waste management, energy use, land use, and visual landscape
- *Integrated assessment* of alternative building blocks with respect to the following criteria: the mentioned environmental criteria, public health, technical feasibility, flexibility, sensitivity to disruptions and calamities, cost, and legal and organizational feasibility
- Scenarios for reduction of *drinking water consumption*
- *Ecological management* of natural areas managed by drinking water companies
- *Socioeconomic impact*
- Revision of the tiered *planning system*.

A wide set of advanced methods and techniques (such as geographic information systems and various types of modeling) were applied to an extensive set of baseline data. The Netherlands has a very good monitoring system for surface water and ground water quality, soil humidity, biodiversity, visual/historical landscapes, and so on.

The SEA main body covers the main results of the SEA in 130 pages, while the complete report covers more than 1,000 pages. The cost of the SEA is roughly estimated as three person-years.

Provisions relating to consultation and public participation

Interagency consultations and public participation were limited to:

- Written reactions to the Notification of Intent
- Written reactions to the SEA
- reactions and discussion at the public hearing
- Meetings with target groups and related agencies.

It is the general view in the Netherlands that public procedures such as these are essential for sound and democratic decisionmaking, and that the costs are more than justified. The SEA procedure in this case serves in an excellent way to "boost" and structure the public discussion with respect to drinking water production in the Netherlands. It was the motivation for a restructuring of the planning system.

Integration of environmental information and consultation findings into the decisionmaking process

The SEA preparation inevitably had a major impact on the BDIV through internalization of the environment into sectoral planning. The case is an example of almost full integration of sectoral and environmental decisionmaking.

Overall Evaluation

- Even in this complex situation, it was useful to assess different options and policy scenarios to achieve environmental improvement; good integration of policymaking and assessment was essential. This was achieved by working in a joint team.
- It was possible to predict on this level of scale the cumulative impact of national policy on biodiversity; once the models had been established (long-term research),

the assessment of political options was not time-consuming.

- An "unsuitable" tiered system was no obstacle for SEA; in fact, the SEA could be used to improve the system and the results will be used in lower-tier EIAs.
- In a context with public review by independent experts, expert judgement could be a successful impact assessment method.
- In the EC (1997) evaluation, the Dutch Water Policy case rates among the best measured along most dimensions. The SEA process complies with all recommended SEA requirements, and its role is strongly proactive, addressing alternatives and cumulative effects and overcoming therefore many of the limitations of project-level EIA.

Appendix B

Case Examples of Good International SEA Practice, World Bank

This annex presents six case studies of good practice strategic environmental assessment (SEA) in World Bank operations. The first three cases are summed up by the authors based on World Bank documents and discussions with relevant personnel. The final three cases are taken and partly adapted from an earlier review of regional and sectoral environmental assessment (EA) in the Bank (ERM 1999).

Bali Urban Infrastructure Project, Indonesia

Background

The project is a broad urban investment program of multiple activities. One component supports a large number of subprojects in the following subsectors: water supply, urban roads and traffic management, drainage and flood control, solid waste management, sanitation, neighborhoods and market improvement programs, and terminals and parking areas. In addition, there is a technical assistance component to improve private-sector participation in the delivery of urban infrastructure services, particularly in water supply and solid waste management. A third component involves cultural heritage conservation activities, while a fourth component intervenes to strengthen institutions responsible for urban policy and management in Bali. This is first and foremost a programmatic loan and much less of a policy-oriented intervention.

The Bali Urban Infrastructure Project (BUIP) seeks to make sustainable improvements in urban infrastructure services throughout the island of Bali, and to meet the needs of growing urbanization as a result of tourism and other economic activities. This objective will be achieved through infrastructure investments, private-sector participation, cultural heritage conservation, and institutional strengthening.

The project implementation setup appears complex: The principal implementing agency is the provincial government of Bali. But there is central government oversight and the Directorate General of Human Settlements of the Ministry of Public Works is the executing agency. The Interministerial coordination team for urban development chaired by the National Planning Agency provides policy guidance and sectoral oversight. (The design was set up

prior to recent political turmoil.) Local governments will have primary responsibility for implementing and monitoring all subprojects in their jurisdictions.

The project has a five-year investment period. It is the last in a long series of Bank-financed projects in support of urban development in Indonesia and claims to be based on the lessons of those: the importance of continuing decentralization, greater and more focused efforts at private-sector involvement, increased focus on the environmental dimension, facilitating community participation, and support for capacity building in urban planning and project management.

The entire island of Bali is to benefit from the project, but with a certain emphasis on the southern parts, given the growing urbanization there. Given the emphasis on infrastructure needs of urban areas, it seems logical that rural and natural areas will be less affected than urban in terms of environmental impacts of the project. However, this will depend on criteria for subproject selection and the actual implementation of them.

Bali is a relatively densely populated (2.7 million inhabitants) island characterized by intensive agriculture, growing cities, and a burgeoning tourism industry (close to 2 million visitors yearly, according to the 1996 EA report), particularly in the south. Tourists are drawn by Bali's rich cultural heritage, pristine beaches, and pleasant climate. The northern side of the island is more sparsely populated and hosts most of Bali's remaining forests. Environmental conditions have been deteriorating in the south as a result of the fast-growing tourism industry, rapid urbanization with associated increases in traffic and volumes of waste. In the north, deforestation remains the largest environmental challenge.

The most critical environmental issues in Bali, according to the SEA, relate to the management and protection of the Natural Conservation Areas (mostly forests), including mangrove forests; protection of water catchment areas for environmental and public health reasons; and progressing urbanization into semirural areas on the urban peripheries, which threatens important social, cultural, rural, and natural values. There is an urgent need to improve the environmental management of the tourism industry and institute better environmental management policies overall, and to strengthen institutions responsible for environmental oversight. The SEA itself was considered part of a renewed effort to implement a more environmentally responsible program with regard to tourism and urban development.

The environmental assessment process

The SEA context

Indonesia did not at the time (and still does not) require environmental assessment above the project level. Existing legislation/decrees required EIA ("ANDAL") for specific projects according to specified criteria fairly consistent with the requirements of other countries. However, a set of policies was in place that indirectly supported the use of SEA. For instance, development should be based on spatial planning, development must take into account environmental opportunities and constraints, and awareness and participation of society in reaching decisions should be developed.

The decision to undertake this part-sectoral and part-regional EA (also called umbrella EA) was done partly to satisfy the World Bank as the principal financing source for the project and partly because the government itself saw the need to take a more comprehensive and strategic approach to the management of Bali's natural resources and environment and to identify ways to strengthen the local policy/legal/institutional framework. The Terms of Reference for the SEA specified that the Bank's guidance on sectoral EA should be used as a guide. The SEA should assess the overall environmental issues and consequences associated with the urban infrastructure program, as well as the legal and institutional gaps and needs, and should prescribe an adequate procedure for environmental screening and assessment of subprojects.

Method

This "umbrella EA" is not a "best practice" as far as assessing cumulative impacts of the program as a whole. Rather, the effort is geared toward presenting the potential impacts of different categories of subprojects that will be eligible for financing under the program, suggesting how significant the impacts of different kinds of subprojects might be, and identifying a range of actions to avoid, reduce, or mitigate such impacts. On the positive side, the study presents a set of maps that define different "environmental zones" in Bali and places the subproject activities and their potential impacts in relation to the different zones. This is helpful as a basis for determining the significance of different impacts and possibly in determining appropriate land uses for the different zones.

It is interesting to note that after submission of the SEA it was determined that a Study on Cumulative Environmental Impacts would be undertaken during project implementation "to identify areas or sectors that threaten Bali's environmental sustainability and recommend appropriate steps." It is unclear whether this was done to redress a shortcoming of the original SEA.

The SEA may have made an important contribution in the following ways: it provides a comprehensive environmental profile of Bali, presents a system of environmental zoning, establishes criteria and guidelines for subproject EIA work, and provides generic terms of reference for subproject EIA and mitigation and monitoring measures for subprojects. It also identifies gaps and needs in terms of environmental management in the island and includes detailed recommendations for institutional capacity building and training required to ensure proper execution of the investment program.

All in all, the SEA appears to have met the requirements of the terms of reference and is largely consistent with relevant parts of the Bank's guidance on sectoral EA.

Presentation of results

The report is relatively short and concise, although some important pages are missing and some information is not in English. Nevertheless, there is quite a lot of useful information on environmental characteristics of Bali. There is an identification of the key environmental resources potentially affected by the program. There is also a good overview of "typical impacts" associated with different kinds of interventions and "appropriate mitigative actions." There is an assessment of institutional gaps and weaknesses and recommendations for strengthening.

There is almost no attempt to assess impact of program, but it might have been premature to do so. Nor is there any analysis of alternatives, but—again—this might not have been appropriate given that the BUIP is essentially a framework for a range of activities across sectors. The purpose of this particular SEA was to provide an effective environmental management framework for this BUIP. The reporting on public consultation is extensive and of good quality.

Provisions relating to consultation and public participation

There appears to have been rather extensive public consultation, both at the preparation stage for the BUIP and once the draft SEA was prepared. The early consultations took place at the village, town (micro), district (meso), and provincial (macro) levels. The micro-level meetings were "informal," with representatives of youth and women organizations, business people, teachers, and community leaders. Information on the BUIP was supplied with the invitation, about one week in advance. A whole day was reserved for each meeting. Macro- and meso-level meetings took the form of workshops. Representatives of district authorities and universities were invited to the macro-level meetings. For the meso-level meetings, representatives of nongovernmental organizations (NGOs) also participated.

A number of concrete recommendations emerged from the consultations at the various levels, addressing—for example—the need for coordination among different subproject activities (for instance, between road improvement and drainage), preservation of cultural heritage, and mechanisms for continued consultation with the public. This latter point was particularly important: the consultations revealed a strong interest in continued public participation in the actual implementation of the BUIP, in order to ensure ownership and the effective delivery of benefits to local communities. A recurring theme was the importance of preserving the identity of towns and their historical and cultural aspects, such as temples.

The second round, once the draft SEA had been prepared, took place at the official house of the Bali governor, after public announcements in several media. There was broad participation. although it is hard from the documentation to determine the kinds of groups that were represented. All interventions were recorded, in written, audio, and video format. The consultations were handled by the Bali authorities in cooperation with the Indonesian environment agency Bappeda. The World Bank was present in an observer role. A report was prepared specifying the results of the consultations, including changes made in the EA report as a result of the consultations. The final consultations appear to have been conducted in a professional and transparent way, allowing citizens to speak their minds.

Integration of environmental information and consultation findings into the decisionmaking process

The SEA appears to have been a relatively important building block for the BUIP in terms of providing spatial zoning for different types of subproject activities; identifying environmental management needs and requirements at the provincial level and setting up a detailed system for environmental

management (including EIA) of subprojects; and helping establish some guiding principles for subproject selection, preparation, and implementation—such as strong community involvement and preservation of cultural heritage. This latter contribution came mainly out of the public consultation process. The links with other assessments related to the project was unclear.

From the SEA documentation, it appears that the public consultations played an important part in designing the BUIP and giving policy direction for the development of subprojects. The "umbrella" perspective of the EA in relation to the investment program provided people with a setting and an opportunity for commenting on strategic issues in relation to design of the BUIP, the process of selecting subprojects, and investment priorities. This, and the fact that the project proponents appear to have taken this input seriously in the design and execution of the BUIP, show a real added value of SEA compared with project-level EA. An SEA, when executed well, gives people the opportunity to discuss environmental and social issues of a policy, plan, or program before all the key decisions concerning projects on the ground have been taken. SEA in this sense can give meaning to the principle of public participation in a way that project-level EIA almost never can.

Linkage with other tiers of decisionmaking (EIAs) is another strong point of the SEA: it established an advanced framework for undertaking EIA of subprojects. It also established guidelines and criteria for environmental management of subprojects not requiring full EIA, but rather such things as design criteria, emission standards, and so on. Most important, it set a standard for public consultation, with the explicit recommendation to replicate the approach for subprojects. The SEA also identified the principal weaknesses in the current environmental management framework in Bali and suggested improvements.

The SEA does not address monitoring of implementation performance in any detail. However, a decision was later made to undertake a Study of Cumulative Impacts over the course of project implementation.

Water Resources Sectoral Adjustment Loan Project, Indonesia

Background

The Water Resources Sectoral Adjustment Loan (WATSAL SECAL) assists the Government of Indonesia (GOI) with budget support, which is linked to policy reforms in the water sector. The reforms consist of changes in the regulatory frameworks and the institutional arrangements for managing water resources, irrigation, and related infrastructure. The aim of the reform is to enhance the effectiveness of investments in the sector by improving notably the transparency, accountability, and integration in the planning, and hence the sustainability and social welfare.

The SECAL is a response to a range of problems in the water sector such as lack of coordination among agencies; poor accountability, transparency, and stakeholder participation in management; fiscal deficiencies; rising water shortages and conflicts; increasingly adverse impacts of water pollution; watershed degradation and sedimentation; need for river basin management agencies

and institutions; ineffective maintenance of public irrigation; and lack of reliable hydrological and water quality data. The WATSAL SECAL concerns the water resources sector in the whole of Indonesia.

Calls for greater government transparency in Indonesia, together with criticism of the Bank's past operations in the country, fostered agreement between Bank staff and counterparts in Indonesia to volunteer to "pilot" an SEA with open consultations as a major tool for the WATSAL (World Bank 2000a). The project team agreed with the safeguards staff that they would undertake an SEA featuring a risk analysis and using extensive and representative public consultations.

This description and assessment of the use of SEA in the WATSAL project is based on the 100-page SEA report from March 1999 (GOI 1999), as well as the Bank's own assessment (World Bank 2000a).

Environmental assessment process

Screening was undertaken through the use of World Bank Operational Policies, which require SEAs to be undertaken (by GOI with Bank assistance) for SECALs. The project was put in environmental category B. However, most of the policy reforms proposed are precisely intended to enhance water management with regard to environmental sustainability and social welfare.

Because SECALs are often not directly linked to investment programs, SEAs for such loans cannot be based on technical assessment of a number of projects or other physical interventions, as is the case in conventional EAs. Indeed, this is typical of EAs of strategic level decisions. Since the SEA team did not have any particular sites to assess, a more general and wider discussion was needed to consider the national policy reform agenda.

In the absence of clear guidance on how to conduct SEAs of SECALs in the Bank Operational Policy, it was determined that the objective of the SEA would be to "inform the Government and Bank management of the scope and significance of the environmental risks associated with the policy reforms to be supported under the proposed operation and, to the extent possible, prescribe mitigation and monitoring procedures to ameliorate any significant adverse impacts."

The principal tool in the SEA was public consultation. The SEA had four components:

1) Analysis of the expected positive and negative impacts caused by, and risks associated with, each policy reform agenda item under the WATSAL and proposals for alternatives and/or mitigating initiatives if negative impacts were anticipated. Use of risk assessment matrix.
2) A brief comparison of the situation and overall risk in cases with and without the WATSAL and the policy reform.
3) An assessment of the effectiveness of the current Indonesian EA procedures for water sector investments, including proposals to make project EAs more pro-active and sector-oriented, and to make the proceedings, consultations, evaluation procedures, and disclosure more transparent.
4) Extensive and representative public consultations with all stakeholders. Detailed descriptions of the consulted groups, along with the way in which comments and queries were addressed during consultations and were taken into account in the

SEA and in the policy reform process itself, were also recorded. The outcomes of the consultations and how comments were addressed were communicated to the groups in a second round of consultations.

The SEA was prepared under the leadership of the Government's Inter-Agency Task Force on Water Sector Policy Reform, which included individuals from two NGOs.

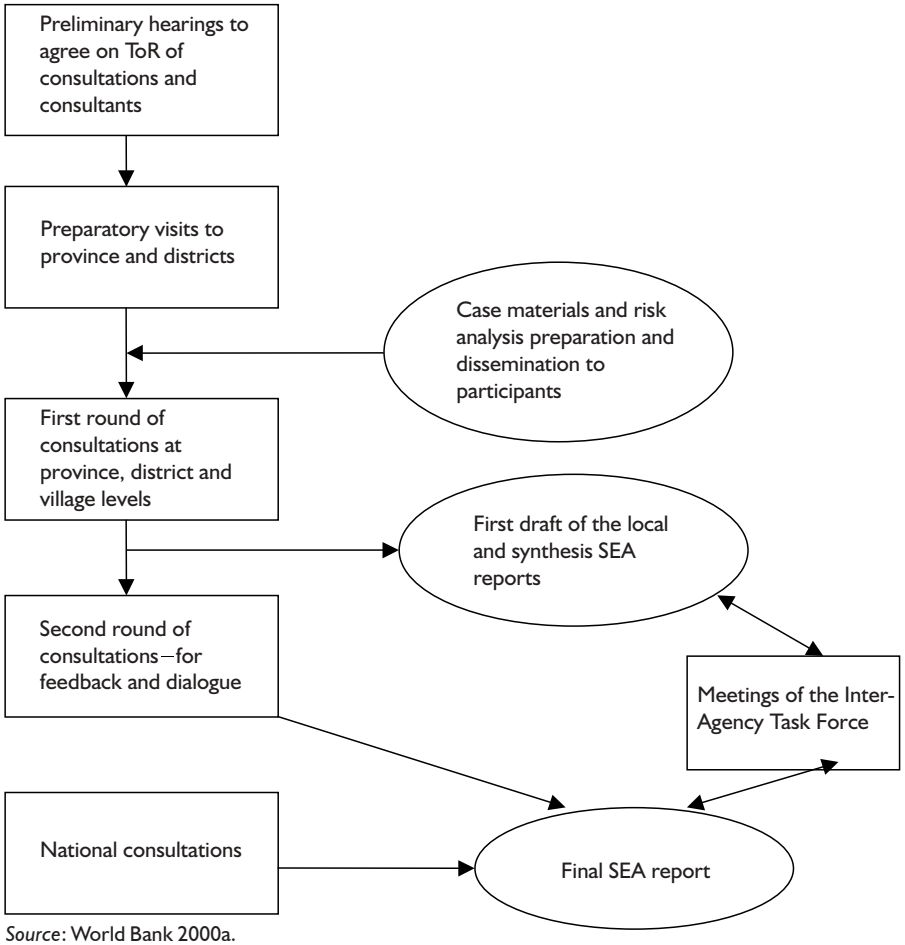
Provisions relating to consultation and public participation

The objective of the public consultation process was to ensure that the views of potentially affected people and other relevant interest groups are taken into account in formulating the analysis.

Members of the Task Force and the Bank's team agreed that the public consultations should be facilitated and conducted by NGOs rather than the government, to ensure openness and avoid bias in reporting. Consultations on local, district, and national levels were held in three provinces selected to reflect the diversity of sector issues likely to arise in the archipelago nation. The NGO facilitators also conducted a separate informal NGO meeting specifically on environmental concerns, as it was anticipated that local water users may not necessarily reflect the best interests of long-term sustainability or ecological values. The broad scope of the SEA was discussed at a preliminary meeting with NGOs, academics, public figures, and representatives from the GOI Task Force.

Two national social/environmental NGOs were contracted to manage the process and prepare the report. Local and international consultants were used for activities requiring

Figure B-1. Public consultation process



Source: World Bank 2000a.

specific expertise. The steps in the consultation process are depicted in figure B-1.

Integration of environmental information and consultation findings into the decisionmaking process

Institutional and governance issues appeared to be the main focus of the dialogue between GOI and stakeholders. A more holistic river-basin approach to water resources management was recommended to address some of the issues that came up during consultations.

Many of the proposed reform items and the suggestions that emerged from the consultations were incorporated in the final design of the loan's reform agenda. In general, however, the identified concerns were not unexpected or very different from the problems addressed in the program documents, and to that extent, the consultations clearly strengthened the validity of the reform agenda.

Some key lessons

The WATSAL case presents a particularly attractive framework for conducting environmental analysis of a policy reform program. Because the sector reforms are still in the early stages of implementation, it is premature to state that this type of EA was optimal for the given program, or to confirm that it had a decisively positive impact on program design. However, the public consultations proved to be a feasible and successful process, especially given the lack of prior experience with open dialogue in Indonesia (World Bank 2000a).

Overall, the consultations greatly enhanced the credibility of the Task Force as well as the legitimacy of the reform agenda. They led to heightened awareness and improved understanding of the proposed reforms and lessened the resistance of some stakeholders. GOI staff and NGOs learned from and appreciated the consultation process.

As a direct result of the WATSAL process, the Task Force institutionalized public consultations as essential steps in the detailed elaboration of the reform components during 2000–01.

Preparation of the SEA and the consultation process managed by the two NGOs cost $70,000. Most funding was provided by a Netherlands Consultant Trust Fund available to the Bank. The WATSAL Task Force paid for part of the expenses. And Bank staff contributed approximately three weeks staff time to initiate and guide the process.

The consultations and reporting took less than four months and did not delay the preparation and approval of the WATSAL (May 1999). On the contrary, because of its participatory character and visibility, the SEA helped to generate support for the water reform agenda across sectors in Indonesia, among the NGOs, and within the Bank.

One flaw in the consultation process is that its outcome has not yet been widely reported in Indonesia outside professional circles.

Since the policy reform dialogue appeared to be relatively mature in Indonesia, public consultations may yield truly differing, if not conflicting insights when applied to other sectors, such as land use and forestry.

The Bank played an important role in the funding and guidance of the preparation of the

SEA. In the future, will governments be willing to spend appropriate resources on such assessments? And do borrowers have the necessary expertise to conduct EAs for such operations? If public consultations become a commonly accepted tool for SECAL EAs, how can it be ensured that they are truly representative, especially dealing with sector-wide issues in a large country? What mechanisms should be used to ensure that concerns and objections to the reform are taken into account through an amended reform program?

It is clear that the EA, and particularly the consultations, must begin very early in the preparation of a reform program in order to accommodate public inputs and allow sufficient time for review, discussion, and negotiation.

The Gujarat State Highways Project, India

Background

Gujarat State Highways project is aimed at widening and strengthening a set of economically feasible state highways. It is financed by a World Bank loan.

In 1995, 3,000 kilometers of state highways were evaluated in a Strategic Options Study performed by Lea Associates South Asia; 1,500 kilometers were selected for detailed studies. The Project coordination consultant conducted a detailed feasibility study and selected 818 kilometers of roads for improvement within the available budget. The environmental team at the consultancy undertook the Sectoral Environment Assessment of the selected highways.

The SEA is presented with both natural and social components. The assessment of the social and natural environment was done simultaneously, since the two are intertwined. This approach gives a more realistic notion, which ought to be a model for future SEAs.

Environmental assessment process

The SEA context

The SEA provides the assessment of the impact of the project as a whole on the natural and social environment of Gujarat at a state level. Through the SEA, all project corridors were categorized in three levels of environmental sensitivity. The SEA also established guidelines and general procedures for the conduct of road-related environmental assessment in Gujarat.

An SEA for transportation problems generally assesses alternative transportation solutions, but this SEA is more narrow in the sense that the specific solution was predetermined as road rehabilitation. The work therefore concentrated on establishing the extent of EA needed for each specific project and the methodology needed for undertaking the EA studies.

The environmental regulations, legislation, and policy guidelines that may affect this project are the responsibility of a variety of government agencies. The implementation of the mitigative measures often requires several agencies to work cooperatively.

Principal stakeholders were selected from various administrative and technical levels, mainly representing government departments

and agencies, as well as representatives from NGO and local experts. The Road and Buildings Department of the State Government of Gujarat (R&BD) established a State-level Task Force to provide guidance and feedback on the social, economic, and environmental issues.

The objectives of the SEA were:

- To perform an environmental screening of the road corridors based on data on natural and social environment conditions collected through a detailed field survey and updating of Strip Maps—the process involved assigning level of impact to each road link, determining which corridors would require further environmental analysis, and determining if any of the corridors should be dropped from further consideration for environmental reasons
- To provide a practical plan for mitigating and monitoring of the impacts that would stem from the construction, as well as from the future operation of the roads
- To design and implement an Environment Management Unit (EMU) to act as a unit implementing the Environmental Management Action Plan (EMAP) and Resettlement Action Plan (RAP) on behalf of R&BD.

Scope of impact

The direct area of influence was primarily road rehabilitation along existing alignments, except one planned bypass. The area of direct influence was confined in a linear fashion along the road corridors. RoW (right of way), the primary boundary defining the project area of influence, was used to set the limits for data collection. In rural areas, the direct area of influence included adjacent land use up to 100 meters on either side, as well as entire villages that were traversed by or were adjacent to the existing or planned RoW.

The indirect area of influence extended 10 kilometers on either side, including national parks, wildlife sanctuaries, protected forests, and archeological and cultural/religious sites.

Data and methods

The main objectives of strip mapping were to verify and update the social and natural environment data recorded on strip maps prepared by the R&BD. This included plotting the social, biophysical, and cultural elements within the RoW, and creating a strip map data base used as input to Deighton Total Infrastructure Management Software (dTIMS), SEA, Environmental Study Report (ESR), and for compliance monitoring purposes.

Two survey teams of six professionals were deployed for one month to record land use and natural environmental features along the project corridors.

Information about the natural environment was collected at two levels: state-wide from secondary sources (background setting), and field surveys. National experts were consulted throughout the project.

Data for the social environment were presented at three levels: state level (socioeconomic, demographic factors), district level (socioeconomic), and local level (pinpointing direct local impacts). The socioeconomic and demographic profile covered area and people, population distribution and density, population growth, occupational structure by industrial category, sex ratio, literacy rate, and rural-urban population growth. At the community level, strip mapping focused on human settlements and the people who live in

them: number of units of residential property, number of units of business property, number of units of industrial property, number of project affected persons (PAPs) (resident and business).

The state of Gujarat has a vast amount of cultural heritage, with many sites of archeological heritage and cultural significance. Numerous shrines and temples are located along the roadsides, and significant efforts are required to protect and enhance these cultural resources. Strip mapping, surveys on archeological and cultural property plus secondary sources were used to identify the areas of cultural significance.

There was coordination and discussions with the engineering design team to ensure that as many environmental impacts as possible might be avoided through design changes and constraints. Examples of design changes included placement of large trees in medians, providing bus stop platforms, and paving of shoulders to facilitate nonmotorized traffic.

Appreciation of the organizational capacity, motivation, and expertise

Community involvement improves the chances that the affected people will participate in the decisionmaking process and provide feedback on issues of concern. The consultation program involved PAP and stakeholders, OG/NGO, and agencies. There was dialogue with all interested parties before making key decisions pertaining the project. Participants from all sectors were affected.

Provisions relating to consultation and public participation

At the state level, NGOs were consulted for views, concerns, suggestions on project design, implementation, RAP, and EMAP. Experts at leading research institutes with experience in resettlements, rehabilitation and community development were consulted for opinions on design, RAP, and EMAP. Communities directly affected were identified and consulted through a limited number of organized village meetings and focus group interviews. An information disclosure guide and focus group discussion guide were prepared. Meetings were taped and notes taken, yielding detailed meeting reports.

Integration of environmental information and consultation findings into the decisionmaking process

After discussions with the government of Gujarat and the World Bank, an Environment Management Unit within the R&BD was created. The Unit is responsible for the implementation of the EMAP and RAP as well as handling all other environmental matters for the R&BD, such as hazardous materials transport, emergency response, and environmental health and safety. The EMU has a Coordinator, two technical specialists from the government, and a specialist with an NGO background.

The R&BD does not have adequate resources to carry out many of the activities proposed in the EMAP and RAP. Some NGOS have these skills, and will be consulted by the EMU. NGOs were involved in the Task Forces and in an early consultation program, and could be involved again. A state-level NGO ought to be involved in the implementation of RAP and act as a messenger, passing PAP grievances to the R&BD and establishing links with local NGOs.

An NGO will be retained to evaluate the implementation of the EMAP/RAP twice during the five years of the project, once midway through and again at the end.

In the SEA, eight key mitigative actions were taken during the early design work. These measures were the responsibility of the engineering design team and the R&BD, with input from other stakeholders. They included:

- Avoiding unnecessary displacement by modifying project alignments, reducing the width of the corridor, or modifying design
- Reducing the width of right-of-way or the corridor of impact wherever possible
- Ensuring access to business and residential units that may have been affected by construction
- Using the land outside the RoW controlled by R&BD, but not needed after construction, to quickly relocate people
- Minimizing the losses to users of public property, such as tree plantations within the RoW, by restricting the cleared zone to an absolute minimum width, given design and safety constraints
- Finding new plots and houses on the open market (letter of credit) for relocating
- Providing roadside amenities such as bus stops or lane markings for nonmotorized traffic along the paved shoulder.

Overall evaluation

The Gujarat State Highways Project seems to be a well conducted SEA, particularly regarding the simultaneous approach to social and environmental effects, the collection and analysis of data, and the public consultations and the feedback into design of mitigative actions.

Argentina Flood Protection — Regional Environmental Assessment

Project objectives and description

The flood protection project was designed to help improve the security of economic assets and persons living in the flood-prone area through a comprehensive program of investments. These included the construction of defense facilities to reduce future losses due to floods and the strengthening of national and provincial institutions and systems for dealing with future floods.

Specific objectives included enhancing provincial capacity to deal with periodic flooding, strengthening coordination of relevant agencies within the basin, providing technically sound and cost-effective flood protection coverage of the most important economic areas, developing institutional mechanisms to sustain flood protection efforts, creating legal and institutional framework to cope with recurrent floods, and preparing master plans for flood defense systems where flood protection infrastructure was not viable.

The flood protection project was implemented by the Ministry of Interior; the provinces of Buenos Aires, Chaco, Corrientes, Entre Rios, Formosa, Misiones, and Santa Fé; and the city of Buenos Aires. It had several components, divided into structural and nonstructural measures. The former consisted of construction works to protect important areas of the floodplain, including fortification of flood defenses in areas with strong economic activity and with greatest vulnerability to repeated flooding. These did not attempt to control the flow of major rivers.

The nonstructural measures were diverse in nature and included the following:

- New institutional framework: designed at the provincial level, it included the development of plans and regulations to rationalize land use, creation of units for coordinating civil defense and other actions, and development of institutional actions that supported the initial operation of the units.
- Upgrading flood preparedness: in areas not warranting further structural defenses, the project would provide shelters and improved housing for low-income families in flood-prone areas.
- Early flood warning system: this entailed development of a comprehensive flood warning system linking the National Institute of Hydrological Sciences and Technology and provincial systems.
- Capacity building: technical assistance was provided for the implementation of the project and related training program to build provincial capacity in flood forecasting, early warning, civil defense, and environmental activities.

Background on EA preparation

An experienced Argentine team of independent consultants led by a Colombian specialist was contracted by the Central Emergency Coordination Sub-unit (SUCCE) to carry out the regional environmental assessment (REA). The study was carried out between February and August of 1995 and cost around $300,000.

Aims and objectives
The overall aim of the REA was to identify the most relevant environmental features of the floodplains of the Paraguay, Parana, and Uruguay Rivers in order to understand the interaction of the natural and manmade systems there, including the ecological functions of the periodic floods. Based on this information, the cumulative environmental impact of the individual flood protection projects could be assessed. Additionally, the REA carried out project specific assessments for each of the priority studies.

Information sources
Due to the size and characteristics of the study area a variety of information sources were used, including:

- Ministry of the Interior's Central Emergency Coordination Sub-unit and Provincial Emergency Coordination Sub-units
- Ministry of Ecology and Renewable Natural Resources of the Province of Misiones
- National Institute of Census and Statistics
- Directorate for Agricultural and Agro-industrial Markets
- Food and Agriculture Organisation
- Secretariat for Agriculture, Livestock and Fisheries Reports (including Sir William Halcrow & Partners Report)
- Bibliographical information from the National University of La Plata, National Limnological Institute, Centre for Coastal Applied Ecology
- Institute of Technology (INTEC), which provided the consultants with satellite imagery.

The quantity and variety of data sources that needed to be used demonstrates the lack of organized regional data and identifies an important need to systematize data and ensure adequacy.

Impact analysis — Methodological approach
The REA was guided by terms of reference that were approved by the Bank and that

adhere to relevant directives, guidelines, and other procedural documents produced by the Bank (including OD4.30 and OP4.04). It included the following elements:

- Identification and analysis of previous studies and lessons learned from similar Bank projects
- The gathering, organization, and systematization of data on the conditions of the area
- A description of the environmental conditions of the region
- Screening of all potential investments to select subprojects that showed clear economic, social, and environmental benefits
- Systematic analysis of alternatives for each site against the principle criteria of least possible interference with natural flooding patterns
- An analysis of the cumulative effects of all flood protection projects
- Public consultation aimed at improving the design of all subprojects
- Changes to the project design to take into account the results of public consultation and of the REA
- Definition of mitigation and monitoring measures
- Identification of institutional weaknesses in dealing with the flood problem
- Definition of four action plans that aim to enhance project benefits and ensure the appropriate management of proposed flood protection projects.

In terms of the REA process, this was initiated at the early stages of project preparation, to maximize its contribution to the design of the project.

The screening of potential investments was a fundamental part of the assessment process. From a total of some 150 possible projects, 51 were chosen with clear economic, social, and environmental benefits. Subsequently, a systematic analysis of alternatives for each site, using the criteria of interfering to the least extent possible, was carried out.

Output

A regional EA report was produced, including EA summaries for each specific project site, which were presented as an annex to the report. The project specific summaries included:

- Project location and description, beneficiaries, and sanitary conditions of the area
- A brief description of proposed civil works and the expected flood protection benefits
- An analysis of environmental issues associated with the civil works
- A description of the expected benefits of implementation of the environmental measures.

In addition to the report, a series of annexes presented the following information:

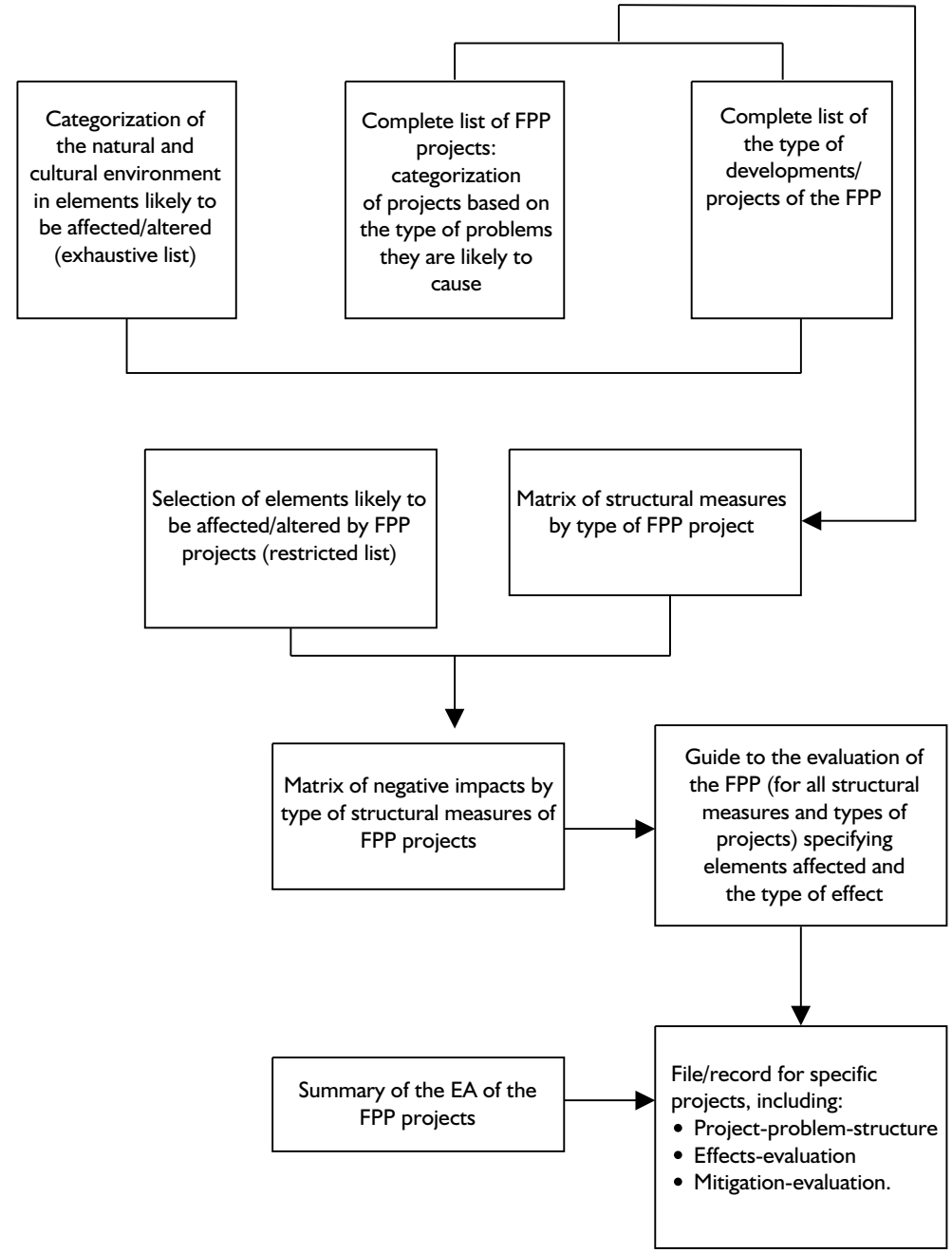
- Instructions to complement the institutional survey
- Provincial information
- Listing of provincial institutions with relevance on the environment
- Protected areas system
- Terrestrial vertebrate fauna
- Cultural heritage
- Minutes from public consultation.

Key issues and recommendations raised in the EA report

Regional conditions

The Flood Protection Project was being considered and analyzed at a regional level.

Figure B-2. Methodological approach for the REA of the Flood Protection Project



Source: (translated by the authors from) Ministerio del Interior Sub Unidad Central de Coordinación para la Emergencia 1995.

It was therefore important to understand the overall conditions of the region and to ensure the consideration of all possible elements that could reduce the long-term benefits of the program. Some of the significant regional environmental conditions are as follows:

- The interactions of ecological functions and human activities with the flood regime conform to a vast and complex macro system. The stability of this system depends on the conservation of the natural interactions between floods and natural habitats.

- The principal threats to the conservation of the rich biodiversity of the floodplains are encroachment on nature habitats for expansion of development, illegal hunting and forest cutting, interference with natural flood process due to urban expansion and other infrastructure, and pollution of small rivers from untreated sewage and industrial effluents.
- Families living on riverine areas have adapted to the floods, while urban and periurban poor people living in high-risk areas are the ones being hit most severely by floods. Larger cities prone to flooding have services that are inappropriate for these conditions.
- Water supply, sanitation, and solid waste collection services are deficient in most cities in the floodplain.

Despite all provinces having the same types of environmental problems, there are no common environmental criteria to handle such problems and no coordination between these institutions, resulting in a wide variety of institutional and legal frameworks for flood emergencies, natural resources management, and environmental control. There are no systematic environmental procedures for major flood protection or any other infrastructure projects.

Environmental issues

The REA assessed the overall cumulative environmental impacts of the proposed Flood Protection Project, as well as project-specific environmental assessments for each of the priority projects. The key issues arising from the REA included:

- Construction of flood protection works could cause imbalances in water dynamics, potentially affecting community composition, although these impacts are highly localized
- Changes in the residence time of water in some areas, and hydrometric variations downstream, are expected—although not considered significant, productivity, energy transfer and accumulation will be affected
- Natural flows will be altered due to the construction of roads and dikes
- Agriculture, livestock raising, and unplanned urban development are leading to considerable deforestation and soil erosion
- Effluent discharge is leading to the loss of biodiversity in rivers and other water bodies
- Poor urban sanitation services undermine existing flood protection works
- Protected areas do not provide sufficient area for the ecological needs of the vertebrate fauna
- There is a lack of environmental awareness and awareness about the consequences of floods in the region.

Public consultation

Public consultation was carried out during project preparation in the form of regional seminars and local meetings in Gualeguay and Resistencia. The regional seminars resulted in a consensus that structural works would provide an essential complement to the nonstructural measures. The local meetings led to changes in project design to ensure community acceptance of proposed works. For example, in Gualeguay the community led to a substantial change in the project in order to preserve the cultural heritage of the area.

Institutional issues

The federal agency in charge of river basin management and water rights control is the Dirección Nacional de Recursos Hídricos, a

department of the Ministry of Economy and Public Works. This agency is in charge of preparing and executing national water resources policy, while the responsibilities for implementation rest with the provinces. In practice, however, the provinces have not been delegated much of the responsibility for water management and civil defense actions, and they would need strengthening. It is also important to note that each province differs significantly in terms of the organizational structure for dealing with flood and environmental issues.

The REA was instrumental in identifying the weaknesses of the existing institutional framework for dealing with the flood problem and preparing a strategy to address those needs. Through the implementation of the environmental program proposed in the REA, the institutional framework for dealing with floods will be strengthened at the federal and provincial level in order to:

- Create better coordination
- Design organizational structures which are more compatible
- Secure greater internal expertise.

Recommendations

The studies concluded that the negative impacts identified would for the most part be highly localized and short-lived. The cumulative impact in the floodplains will be of much lesser magnitude than existing environmental pressures caused by other human activities and infrastructure. The principal environmental criterion for the assessment of structural works was that it should cause the least possible interference with natural flooding processes.

In order to address the main issues identified during the study and to enhance project benefits and ensure appropriate management of proposed flood protection projects, four programs were designed.

Table B-1. Regional environmental programs

Existing situation	*Environmental program*	*Participating institutions*
Weak environmental assessment capacity for flood protection works	Strengthening environmental assessment procedures in key institutions	SUCCE, SUPCEs, provincial environmental/natural resources agencies
Insufficient urban environmental infrastructure and technical solutions to deal with flood impacts	Technical assistance for urban environmental management	Municipalities, NGOs
Lack of environmental awareness in communities related to floodplain ecosystems and flood protection works	Environmental education and awareness programs in communities benefiting from protection works	Communities, NGOs
Degradation of wetland and floodplain ecosystems and lack of effective protection systems	Support to protection and management initiatives for wetland and other ecosystems, especially near urban centers	Provincial natural resource agencies, research institutions, municipalities, and NGOs

In the case of the individual projects, an environmental assessment summary was produced, which included the specific mitigation and monitoring measures.

Environmental Action Plan

The regional action plan was composed of four programs, in order to address the different types of issues that were identified during the REA (See Table B-1).

Effects of the EA process on project design

The REA, which studied the interaction of natural and manmade environments within the floodplains, found that many ecosystems and human activities were dependent on the floods. This conclusion dictated the main criteria for the project's design, emphasizing the need to design nonstructural components. This, in turn, influenced criteria for the selection of investments to ensure that flooding would continue to take place, but should stop threatening human well-being and economic infrastructure.

Perhaps the most important contribution of the REA was the screening of potential investments, while the extensive public consultation efforts undertaken during the REA contributed to redesigning and improving subprojects.

Ethiopia Road Sector Development Program — Sectoral EA

Project objectives and description

The Federal Democratic Republic of Ethiopia considers rural development through agricultural-development-led industrialization to be of highest priority. Rural infrastructure development and in particular the acceleration of the roads program is vital to this plan, since it will increase connections between settlements and regions.

The Ethiopian Roads Authority (ERA) has therefore developed a Road Sector Development Program (RSDP) for the period 1997–2007 to accelerate the expansion and improvement of the road network. This is being implemented by the ERA and the Regional State Rural Roads Organizations (RROs).

The International Development Association (IDA) is providing credit financing for an RSDP Support Project, which forms part of the overall RSDP. The principal aims of the Support Project are to:

- Improve trunk and regional road access to meet agricultural and other economic development needs
- Ensure the rehabilitation and upgrading of trunk and rural roads and the provision of technical assistance to facilitate this
- Build institutional capacity for sustainable road development and maintenance, in both the public (ERA and the regional RROs) and private sectors
- Provide economic opportunities for the rural poor through employment in road construction and provision of affordable means of transport
- Assist in the development of environmental guidelines and sector EA capacity building.

The cost of the RSDP Support Project totals around $540 million, of which IDA is providing some $310 million. The development of environmental guidelines and sector EA

capacity building represents just 0.3 percent of the total cost of the Support Project. This component is being financed by the European Union and the Nordic Development Fund. The RSDP Support Project is being implemented between 1998 and 2003.

The case study focuses on the EA of the whole RSDP.

Background on EA preparation

Plancenter Ltd. of Finland was contracted by ERA and IDA to complete the environmental assessment of the whole Road Sector Development Programme. The company's report was submitted to ERA and IDA in August 1997, with initialization of the Support Project being planned for the end of May 1998.

The assessment of the RSDP consisted of two types of studies: a road sector EA and site-specific EAs for five planned road components. The aim of the Sectoral EA was to ensure that in-country capacity, regulatory frameworks, and procedures for environmental management were established and that they would serve as a basis for environmental assessment of all future road construction carried out under the RSDP.

The specific objectives were to:

- Identify the most significant environmental issues that could arise in the RSDP and future road sector development in Ethiopia
- Develop in-country capacity for road sector EA (looking at the policy/regulatory and institutional framework)
- Define environmental principles and criteria for road development to inform the process of selecting priority roads for the RSDP
- Provide the basis for published guidelines for the EA of road projects in Ethiopia.

The documentation reviewed included:

- Relevant legislation, policy papers, and guidelines of the Ethiopian road and environment sectors
- Reports and statistics on the baseline biological and physical environment
- Recently completed road EAs from Ethiopia
- Design specifications for the proposed road developments.

The analysis was also guided by relevant directives, guidelines, and other procedural documents produced by the World Bank, the European Union, the Asian Development Bank, and the World Conservation Union. In particular, the World Bank's *Roads and the Environment Handbook* was used extensively as a guide to identify the environmental impacts of road sector projects.

The Sectoral EA involved the assessment of the environmental impacts of the RSDP and the strengthening of the organizations involved by analyzing capabilities, planning training, making suggestions for organizational structures and co-operation, and producing guidelines for environmental management for the Ethiopian Roads Authority.

The methodology used involved:

- Collection and review of baseline data
- Interviewing organizations, institutions, and persons relevant to the work
- Site visits to the five proposed road sites for consultations

- Questionnaires, meetings, and interviews with ERA, the Ethiopian Environment Protection Agency (EPA), regional and local NGOs, road-side dwellers and businesses, and road users
- Public meetings in towns and villages during site visits
- A workshop held to discuss the environmental impacts of the road sector.

Given the wide-ranging objectives of the EA, environmental issues were analyzed from a national policy and institutional level down to site-specific concerns. The approach taken appears to have focused on institutional issues with regard to the high strategic level planning, while focusing most of the impact assessment work at project level.

Scope of impacts

In discussing the most critical environmental impacts and mitigating measures and monitoring associated with RSDP projects, the focus of the study has been on the physical implications of the construction phase. For example, adverse impacts on vegetation are associated with construction (for instance, operating quarries); wildlife impacts are recognized as potentially significant although, again, they would be due to "temporary displacement" of migratory species during construction; "induced development" was interpreted to refer to construction camps and the issue of their location, rather than to induced ribbon development being attracted along the road. Issues such as rural-urban migration were not addressed. Even impacts on the human and social environment appear to refer essentially to land occupation and resettlement needs, rather than expanding to consider long-term impacts of the infrastructure on their livelihoods.

Setting priorities

One of the main objectives of the EA was "to define environmental principles and criteria for road development to inform the process of selecting priority roads for the RSDP." The report provided a guide to help the identification of environmentally hazardous and environmentally sustainable projects for further planning, but concluded that the prioritization of projects at RSDP level on environmental grounds was not feasible. It argued that it would be difficult to weigh different impacts in a way which would be acceptable to all stakeholders.

The individual EAs identified the potential impacts of the road construction on the physical and natural environment and the potential human and social impacts. Through extensive public consultation, they also recorded views on road improvement plans and on the project's impacts on the people's economic and social life.

Output

The 37-page sector EA report was produced in addition to site-specific EAs for five planned road components of the RSDP. The report was produced in one volume consisting of:

- A description of the policy, legal, and institutional setup of the environmental aspects of the Ethiopian road sector
- Suggested staffing and training for the Environmental Impact Branch of ERA
- Overview of ERA's Road Development Sector Plan from an environmental point of view
- Critical environmental impacts and their mitigation measures
- A monitoring plan.

In addition, the volume included a number of annexes.

Key issues and recommendations raised in the EA report

Key issues

The EA developed a framework for the assessment of future road projects contained within the RSDP. The key issues that it recommended be addressed in all road EAs included:

- Erosion and dust pollution (specific problems in Ethiopia that require careful planning and design of all developments)
- The availability of natural resources (water and fuelwood are extremely limited in some areas of Ethiopia)
- Ethiopia's rich stock of biological resources (already severely threatened by environmental degradation—a number of areas have been designated for protection)
- Culturally and historically significant sites (nationally important sites are protected but there are numerous sites of local significance)
- The often fragile local economies in Ethiopia (induced development from labor camps, for example, can cause increased inflation, competition for resources and services, and the promotion of antisocial behavior such as prostitution)
- Loss/reduction of land or livelihoods of local people (through road widening, for example—compensation and/or alternatives would need to be considered)
- Compulsory resettlement, where houses have to be removed to make way for road widening (this was not expected to involve more than a few households in any one location, but the current institutional framework to manage resettlement issues needs improvement).

SDP places strong emphasis on the rehabilitation and upgrading of the existing road network, with more than 60 percent of funding being allocated to the rehabilitation and upgrading of existing federal roads. The EA report endorsed this approach and noted that the potential adverse impacts of upgrading an existing route are usually far less severe than those associated with a new road.

The review of the legal framework for EA highlighted that in some cases, guidelines and regulations that have been developed by the competent authority (the EPA) need to be strengthened. For example, EPA has not set itself a time limit to screen proposed projects. The current legal framework is therefore a potential barrier to the implementation of good practice.

The EA highlighted the value of conducting extensive public consultation. Many of the issues and concerns defined in the EA were revealed as a result of this process, which ensured that the extensive concerns of the local people were discussed. The local stakeholder consultation also revealed that all people (those living by the roads and those that use them) accepted the benefits of the project and, as a result of the consultation, resistance to negative impacts during project implementation would be reduced. The results of public consultation undertaken at village level were presented and then discussed at the workshop.

Institutional issues

Overall, the EA found that the success of the RSDP from an environmental sustainability

point of view would mainly depend on the progress in institutional development, particularly the strengthening of the Environmental Unit of the ERA.

Although the existing legal framework itself needed improvement, the most important issue to be addressed was in fact the ability to implement legislation and policies. This involved building capacity within ERA so that it will be able to incorporate the EA process from the planning to the implementation of its road projects. New staff will have to be employed and training provided to ERA and its regional RROs.

Institutional strengthening, through increased capacity to adequately screen, review, and monitor EAs conducted by sector agencies, was also suggested for EPA. This would avoid the risk of EPA being overburdened by demands from sector agencies both at federal and regional level.

It was found that the road sector was not represented in the newly created Environment Council (part of the EPA, and consisting of representatives from the Ministries of Trade, Agriculture, Health, Mines and Energy, Water Resources, and Science & Technology), which has responsibility for cross-sectoral environmental issues and cooperation in the country. This was considered an important omission, and the ERA was recommended to appoint a representative.

The results of the EA and the recommendations on institutional issues would have a positive effect on environmental management across all development sectors in Ethiopia.

Recommendations

Effective management in the roads sector depends on the adequate staffing and training of ERA's Environment Unit, which was recently established and will be responsible for completing (or supervising the completion of) EAs of future road developments. EAs will then be submitted to EPA for review and approval.

The report provided recommendations on the staffing and skill requirements of the ERA Environment Unit, suggesting five specialists:

- An EA manager/economist
- An engineering specialist
- A hydrogeologist
- An ecologist
- A sociologist/socio-economist.

These should be trained professionals who should participate in short (three month) training courses in EIA provided by academic institutions abroad (for example in Manchester, Rotterdam, and Nairobi).

Environmental awareness training should also be provided for all personnel of ERA on the planning and decisionmaking levels as well as at the implementation, operation, and maintenance levels. Training topics should include the environmental issues of road sector development, the EA process, environmental aspects of planning and design, and environmental management.

The ERA Environment Unit and EPA must develop EA guidelines and criteria upon which road development EAs will be based. For this purpose, the report included an initial checklist for the identification of likely environmental impacts of future road projects, and recommended that—in the interim period—World Bank guidelines for EA (provided in OD/BP/GP 4.01) should be used.

A checklist for scoping site-specific projects, based on the key environmental issues identified in the EA, was provided as an annex to the main EA. For example, soil and bedrock conditions should be assessed with regard to erosion, stability of slopes and subsidence. The identification of both adverse and beneficial impacts was recommended.

Monitoring of adverse environmental effects was recommended as a responsibility of the Environment Unit of ERA, which should also provide advice in case of environmental incidents (such as spills or leakages). A person responsible for environmental issues in the regional RROs would provide information and support for this process.

Future project-specific EAs should identify where monitoring is required, and the following issues were suggested for consideration: erosion; ground and surface water levels; changes in vegetation cover; changes in the numbers and routes of wild animals; air and noise pollution levels; effects on cultural and historical sites; resettlement and migration; changes to the social structure of villages/towns; the growth of tourism; and any changes to population, migration, and access to development programs, where new connections have been provided. Information on these issues would be collected at the local level on a one time (for instance, a few years after completion) or continuous basis (for erosion, for example), depending on the issue, but it was not made clear who would pay for this or what the costs and benefits might be.

Environmental Action Plan

The EA report was an advisory document for use by ERA to develop its EA guidelines and its institutional capacity for effective environmental management. It therefore forms the basis for the development of an Environmental Management Plan by ERA to implement the proposed recommendations.

Effect of the EA process on project design

The second draft final report of the RSDP was produced in January 1996. As a result, the Sectoral EA was not specifically intended to influence this document, but rather to influence and inform the development programs and projects that would derive from it. Thus the draft EA guidelines developed will act as a scooping document to identify, at an early stage in the decisionmaking process, future programs and projects that are likely to have significant adverse impacts on the environment. The results of this EA will therefore be useful to inform future sectoral planning, for projects within the RSDP and beyond.

The report's detailed recommendations to avoid and mitigate against potential environmental impacts of road sector projects will inform the planning and design process of future road projects. Projects with significant benefits or adverse impacts will be identified and necessary alterations made.

Nepal Medium-Sized Hydropower Development Strategy — Sectoral EA

Project objectives and description

Only 10 percent of Nepal's people enjoy the benefits of power supply. The load in the national power grid has increased at more than 9 percent annually for the last few years, and power demands are estimated to grow

more than 10 percent annually into the first decades of this century. Load shedding and brownouts that are experienced most prominently in the capital, Kathmandu, started in 1991 and have remained severe ever since. The number of customers nationally is now growing at more than 8 percent a year. Many potential domestic and industrial customers throughout the country are forced to install private diesel capacity or to do without electricity in the current situation.

To alleviate the situation and draw on lessons learned from the cancellation of the planned 402 megawatt (MW) Arun III Hydroelectric Project in Eastern Nepal in 1995, His Majesty's Government of Nepal (HMGN) and the World Bank in 1995 agreed to pursue a medium scale hydropower development strategy and to establish a Power Development Fund (PDF) that will be a catalyst for private-sector investment and will supplement other public financing available for the development of hydropower and electricity supply in Nepal. While preparations and establishment of PDF was taking place between 1995 and 1999, it was confirmed that a pipeline of smaller hydro projects (where financing and licensing were already in place) would be implemented to cover short-term demand growth and to close the existing power deficit gap.

rom the outset, it was decided that eligibility for support to hydro projects through PDF would be based on a screening and ranking (S&R) of identified potential medium sized projects (10–300 MW). Technoeconomic as well as environmental and social criteria were applied in the S&R process. This approach identifies the projects that are most attractive and have the least risk of creating stakeholder conflicts.

Background on EA preparation

The SEA was prepared in collaboration by the Ministry of Population and Environment (MOPE) and the Ministry of Water Resources, in consultation with EA experts from the World Bank. The funding was provided through IDA loans under the Nepal Power Efficiency and the Power Development Fund projects.

Aims and objectives of the EA

The objective of the Sectoral EA was to integrate environmental and social considerations into Nepal's power sector planning process in a transparent and public consultative manner. The S&R provided the core activity of the analysis of alternatives in a sectoral EA. The project output was intended to provide a regulatory tool to support the management of natural resources and economic risk management.

The full EA process consists of:

- An update of a nationwide inventory of sites suitable for medium scale hydropower projects
- A two stage review of technoeconomic and environmental and social parameters of potential projects and sites, and a recalculation of parameters on a consistent basis
- Use of technoeconomic and environmental social screening and ranking criteria developed through a consensus reaching process
- Provision of open consultation and information sharing with government stakeholders, the professional community, NGOs, and the general public on each step in the S&R process.

The S&R aimed at selecting a number of projects that since have proceeded to feasibil-

ity planning, including environmental assessments, under Nepal Electricity Authority's (NEA's) Medium Hydropower Study (MHSP). Thus potential projects are subject to selection and detailed scrutiny by environmental assessment, first at the sectoral level (MHSP phase 1) and next at the project specific level (MHSP phase II). This approach meets both World Bank requirements for support and Nepal's legal requirements for licensing. Projects smaller than 10 MW are also eligible for PDF support, and can be considered without having been subjected to S&R.

Impact analysis— Methodological approach

The materials for the various components of the S&R exercise were compiled and prepared by the NEA MHSP project team, which also included the international consultants responsible for the design of the S&R. The whole exercise was executed in close consultation with an Interagency Committee consisting of representatives from the most relevant HMGN Ministries. The basic principles and inspiration for the design of S&R come from the Norwegian pilot experience of 1985, Norwegian Master Plan for Development of Remaining National Hydropotential. An Internet Web site describing MHSP, issued by NEA, provides a summary of the S&R exercise. The project (MHSP phase 1) started in early 1996, and was completed in l998. The methodology, inventory, project data sets, and steps in the consultation process are comprehensively documented in MHSP phase I reports that were all made public.

The primary criteria applied for Screening and Ranking of potential projects in the MHSP Phase I site inventory were in the technoeconomic dimension:

- Power supply costs
- An assessment of site-specific risks (such as geology or hydrology)
- Fit of the potential project with power system needs.

The criteria in the environmental social dimension were:

- Physical impact,
- Biological impact
- Social/cultural issues.

Composite ratings between 0 and 100 points to indicate between lowest and highest preference were assessed for each of the two dimensions for each site, allowing the projects to be entered and compared in a simple (Cartesian) two dimensional Ranking Preference Matrix.

The time and level of detail to which different potential projects in the inventory had previously been studied were diverse. Updating all 138 projects in the inventory up to the same standard would have been a resource-demanding task. Instead, a set of simple indicators were defined to provide a coarse screen to weed out the least acceptable projects at present. These indicators related to major resettlement, significant dewatering of rivers by major diversions of flow, and/or interference with protected biodiversity/ natural and cultural heritage areas.

The 44 projects that passed the coarse screen were then rated on the basis of available data and preliminary project layouts. A cut off line was chosen in the matrix to provide a finer screen, separating out 24 of the most acceptable sites to be further investigated and compared. From these, seven 'highest acceptability' projects have since been selected

through fine ranking, to proceed to more advanced planning.

Fine ranking required checking the suggested project layouts and updating technical, environmental, and social information of the remaining 24 sites. Plans and information were brought to prefeasibility study level to provide sufficient detail and consistency between projects to make more meaningful comparisons. This involved considerable data collection in the field, where local stakeholders were also interviewed and consulted with.

The main technical economic and environmental social indicators described were maintained for the fine ranking, but the level of detail and accuracy in investigations underpinning assessment of ratings was increased. For the environmental social impact rating, an Initial Environmental Examination checklist consisting of physical, biological, and social/cultural parameters was used, amended with some additional social parameters to harmonize with World Bank policies, yielding altogether 71 impact parameters. Eleven parameters used to indicate potential environmental and social enhancement measures were defined in addition. Each parameter relevant to the site/project at hand would be given a score between 1 and 3, based on collected data from available sources, field visits, and interviews.

The checklist was applied for separately assessing:

- Baseline conditions (pre-project)
- Impacts during the construction phase
- Impacts during the operational phase of the project.

Individual or clusters of parameters were weighted in consultation with stakeholder groups. Combining all these elements, the weighted scores were added up and transformed into a composite rating between 0 and 100 for the environmental social dimension. A similar approach was applied for the technical economic dimension, and the projects entered into the preference ranking matrix. The sites/projects were first compared in separate categories, Run-of River 10 50 MW, 50 100 MW, 100-300 MW, and Storage projects for system fit assessments.

Public participation

Information dissemination and stakeholder consultation was an integral part of the whole exercise in order to maintain transparency and receive stakeholder feedback and inputs throughout the process. The consultation plan lists the major government, nongovernmental, and private sector stakeholders in power development in Nepal and their likely interest in the MHSP Phase I work. From this wider list, a group of primary stakeholders was selected for direct involvement in the process. These have a national level perspective, as opposed to interest in specific projects in one area only. Through newspaper notices and establishment of a Public Information Centre, secondary stakeholders and the general public were informed of the MHSP work, given access to all documents and reports, and invited to provide inputs.

Outputs

The S&R constituted the backbone activity in the Sectoral Environmental Assessment that also contains projections of power demands in Nepal; a summary of main environmental and social issues considered; a synopsis of

HMGN's existing Hydropower Development Policy and associated issues; an analysis of alternatives in which fossil fuels, new renewable energy, electricity imports, conservation and demand management, and hydropower (S&R) were considered; transmission and distribution; institution strengthening; public consensus building; and finally, recommendations.

Key environmental issues

Analysis of alternatives

The SEA of the Nepal Power and associated S&R exercise has addressed the issue of timeliness of EA. Alternatives analysis was conducted well before and as a basis for selection of projects/sites. This contribution to Nepal's power sector planning process was carried out transparently and with wide public consultation, recognizing and making an initial examination of environmental and social consequences of optional power projects so as to avoid or minimize adverse and enhance positive impacts of the resulting power development strategy.

The Analysis of Alternatives in the SEA considered optional supply technologies at the generic level. With the exception of new renewables that may play an important role in rural electrification, and increasing the facility for grid connection and power exchange with India, the SEA at this time advises against thermal options, as landlocked Nepal has no indigenous resources and will be heavily dependent on imports. For the primary objective of supplying power to meet demands in the national grid, the SEA recommends the Medium scale Hydropower Strategy, and the results of the MHSP Phase I S&R exercise, which by all indications will provide the most acceptable path to also deal with the associated natural resources and social management issues.

Dealing with natural habitats and cultural property

In relation to natural habitats, the application of both the coarse and fine screening criteria, as well as the rating and scoring system for the environmental social dimension, has demonstrated a cautious approach to conversion of natural habitats and interference with cultural properties. Altogether the present exercise led to avoidance of selecting projects in areas currently protected for reasons of natural and/or cultural heritage in Nepal. In selecting projects for further planning and possible development, the tradeoff methodology applied sought to identify project alternatives where project benefits and anticipated mitigation were those that to the highest degree offset environmental costs.

Involuntary resettlement

The S&R approach has systematically worked to avoid or minimize resettlement associated with selection of project sites, not least with regard to reservoir projects that are necessary to develop for reasons of power security and fit, and where the projects that potentially would displace most people were screened away.

Safety of dams

The relative risks of seismisity and upstream glacier lake outburst flow hazards have been considered in choosing between different potential dam sites, so as to minimize these risks through the selection process.

Key institutional issues

Prior to the present MHSP project, HMGN had already developed a legal framework

conducive for hydropower development and private investment including a Hydropower Development Policy, a Water Resources Act, an Electricity Act, and an act for Facilitating Foreign Investment. On the environmental side, HMGN had also developed National Environmental Impact Assessment Guidelines, and during the MHSP Phase I passed an Environmental Protection Act that fully creates a framework for the Environmental Assessment process in the licensing of power and other projects. HMGN is developing a Land Acquisition and Compensation Act, which was expected to be presented to Parliament in 1999.

In order to ensure full compliance with World Bank environmental and social policies of projects presented for PDF support, an Environmental Assessment Policy Framework and Process Guide was developed by the Ministry of Population and Environment, the Ministry of Water Resources, and the World Bank. Both World Bank and Nepalese legal requirements will need to be met in planning and implementing PDF-supported projects. Nepal's legal framework for EA was found to be compatible with World Bank policies, but was at present found to be incomplete with regard to land acquisition and compensation.

In establishing the legal framework relevant to power development in Nepal, HMGN has taken great care in creating a licensing process that is efficient and credible to both private investors and to other stakeholders that could be affected by projects. Hence, there is a "one window" facility in place, where the Electricity Development Centre (EDC) under the Ministry of Water Resources (MOWR) is the one and only governmental institution to be approached by project sponsors or promoters and that handles all coordination and necessary clearances from other relevant government agencies, including environmental clearance from MOPE. MOWR is the ministry that has licensing authority.

As there is limited capacity and experience with EA and licensing of power projects in Nepal, HMGN has requested several international development agencies to support institution capacity building. The U.S. Agency for International Development is presently involved in providing technical assistance to EDC, the Asian Development Bank to TEA, the CIDA to MOWR and Norwegian Agency for Development Co-operation (NORAD) to MOPE, in order to help in capacity building in support of maintaining an efficient and credible licensing process for power projects. The development agencies and governmental institutions are seeking cooperation and coordination between the different players providing technical assistance in order to achieve consistently maximum benefit.

Recommendations

With relation to the S&R process, it was recommended that it should be considered how both the technical economic and environmental social S&R criteria may be refined, and that S&R should be extended to small hydro scales (1–10 MW). Further, future updates of the S&R exercise should be considered in five-year cycles linked to the HMGN five year planning cycle, and responsibility for future updates should be clearly defined and necessary resources allocated. Public consultation during S&R is important and should be continued in future. Among other recommendations in the sectoral EA was the promulgation of a National Water

Resources Policy, leading to a Water Resources Strategy. This further implies that Basinwide (Regional) Environmental Assessments and a National Water Resources Environmental Action Plan would be developed. HMGN is presently in the process of initiating such a process in cooperation with the World Bank.

Environmental Action Plan

The application of the sectoral EA represents an important step toward promoting coherent water resources management. Within the resource limitations of the project, multi-objective issues were considered in connection with the potential projects. However, full integrated basin planning has yet to be conducted in Nepal. This is likely to be part of development of a comprehensive Water Resources Strategy currently under initiation by HMGN and the World Bank, and will complement and be supported by the data compiled for the MHSP S&R. An important component of the strategy process will be to develop a Water Resources Environmental Action Plan.

Effects of the EA process on project design

The S&R has led to selection of seven hydropower projects in the medium-scale range (10–300 MW) that have proceeded to feasibility planning—three by the Nepal Electricity Authority and four by other selected Nepalese consultants. Feasibility planning is taking place under the supervision of an international consultant. When the feasibility planning is completed, the projects will be solicited for private or public financing, and subsequent licensing by HMGN. All of these projects are eligible for support by PDF, as intended for catalyzing private investment.

The S&R process has contributed significantly to identifying and minimizing environmental issues of concern early in the planning process, and has reduced the risk for potential investors of being denied a production license for the project. The early public consultation has confirmed that the projects are the most acceptable of project options to contribute to Nepal's medium-term power supply.

The process has significantly contributed to capacity building both in the NEA MHSP team and in governmental agencies that participated as primary stakeholders in the interagency consultative group. Several members of this group have expressed satisfaction with how the work facilitated dialogue and understanding. It has also contributed to developing greater transparency and involving broader stakeholder groups in the decisionmaking process. It has been decided that the process will be repeated for future updates when needed.

The selected projects have now been fed into an ongoing power system expansion planning process supported by the Asian Development Bank, for consideration of alternative least-cost sequencing.

Appendix C

Promising SEA Approaches

This annex gives a brief description of three of the most promising strategic environmental assessment (SEA) approaches: the Environmental Overview, the Dutch E-test, and the Strategic Environmental Analysis (SEAN). The descriptions are based on Brown (1997a), Thérivel and Tonk (2000), and AIDEnvironment (1999) and Kessler (2000) respectively. For further information on the Dutch quick scan and the Analytical Strategic Environmental Assessment (ANSEA) mentioned in chapter 6, see Annema et al. (1999) and the ANSEA Web page (www.taugroup.com/ansea).

The Environmental Overview — A Simple and Quick Interactive Process for Strategic Decisions

The Environmental Overview (EO) is a form of SEA tool developed by the U.N. Development Program (UNDP) and based on the 1992 UNDP environmental management guidelines (UNDP 1992). (The UNDP definition of environment includes social, health, cultural, and economic dimensions, not only biological and physical.) It is a response to perceived high benefits of moving the environmental assessment practice for UNDP activities upstream. In addition, as for the World Bank, UNDP support is changing from project-based support to aid of a "softer" nature. Aid projects consisting of institution building, sectoral support, development of in-country capabilities, and similar efforts are common, if not the norm. These changes in support portfolio pose new challenges to environmental assessment, necessitating tools that operate at a more strategic level.

The UNDP rejected a checklist approach to the environmental screening of development projects. This decision was based on the belief that checklists are a mechanistic and trivial form of assessment that in many cases have little impact on program formulation (Brown 1997a). Therefore, UNDP focused on environmental analysis at the policy, plan, and program (PPP) formulation stage in its EO.

The core element of the EO tool is a set of structured questions about the proposed PPP, the environmental baseline conditions, impacts and opportunities, design options, and operational strategies. Examples of questions are: What are the biophysical and social conditions? What are the main environmental

and social issues? What are the economic situation and forces? What are the current environmental management practice and capabilities? What are the major natural and socioeconomic impacts and opportunities associated with the implementation?

Answering these questions results in a brief document, but it is the interactive process of assembling the EO document, including any consequential changes to the PPP, rather then the document itself, that is the heart of the process.

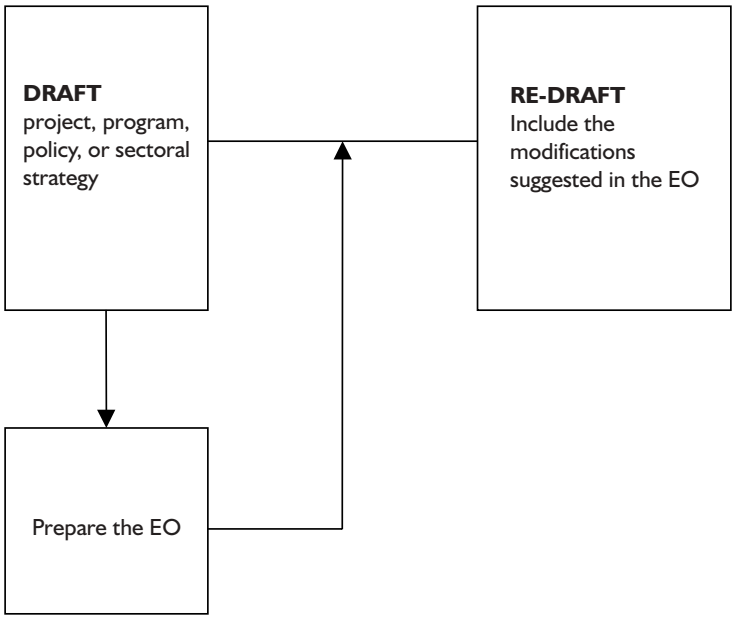
According to Brown, there are four critical aspects to the successful application of an EO to development activities:

- The PPP must be in draft formulation stages.
- There must be sequential completion of each of the structured questions of the EO.
- The EO must be undertaken using a broad mix of specialists and other actors such as nongovernmental organizations (NGOs), local people, UNDP staff , and so on.
- The process must include modification of the draft PPP (if required) as an integral part of the EO.

The EO is a flexible tool, and experience shows it can be applied to projects, programs, sectoral analyses, and policies (Brown 1997a). Brown also argues that the EO is a creative, not only a review, tool and that it can have widespread application outside UNDP's development activities.

The EO can, according to Brown, be completed in very short time (down to one day), depending on the complexity of the PPP. The EO is based on the premise that knowledge skills to recognize (not necessarily to solve) the broad environmental and social issues associated with development proposals and to maximize opportunities within development proposals reside within a country and can be harnessed through a participatory group process.

Figure C-1. Role of the EO in the formulation or reformulation of projects, programs, policies, or sectoral strategies



Source: Brown (1997).

The Dutch E-Test — A Simple and Flexible Approach for Extending the EIA Requirements to Policy Proposals

The E-test was developed to assist the design of new legislation in the Netherlands. Decisionmaking processes that are not open (for instance, for reasons of confidentiality) or where little time is available (as in annual budget allocations) were particularly seen to fall outside the environmental impact assessment procedures for spatial and sectoral plans and programs. The main challenge for the government was to develop a system that stimulates rather than forces departments to make good assessments of their legislation.

Key objectives of the system, therefore, were threefold: it should be client-oriented, selective, and easy to integrate in the existing process for developing new legislation. They sought to achieve these objectives as follows:

- The first objective was achieved by creating a helpdesk and by coordinating the environmental assessment with other required assessments.
- The second objective was achieved by keeping the number of questions to be addressed in the assessment as low as possible and by being selective in the legislation for which assessment is needed.
- The third objective was achieved by making sure that the characteristics of the E-test procedure matched the characteristics of the process by which legislation is drafted in the Netherlands: an informal, internal process, with no mandatory direct public participation and based on trust and cooperation between civil servants.

The E-test has these same features: a simple, flexible procedure, with no public participation or independent external review and in which representatives of several departments work together. The E-test by Verheem and Tonk (2000) is an example of an SEA procedure that satisfies the basic SEA principles mentioned in Chapter 2.

Strategic Environmental Analysis—A Proactive, Consultative, and Open-Ended Approach

SEAN was developed by AIDEnvironment, a Dutch group, on request and in close collaboration with the Netherlands Development Organization in 1996. SEAN is a comprehensive and practical methodology for integrated environmental analysis to support strategic planning in developing countries. SEAN basically deals with the interactions between ecosystems and human society, and it aims to develop insight and generate transparency. The methodology is flexible in that it can be applied at different levels (national, regional, or local), and with different levels of detail.

The stated main objectives of the SEAN approach are to:

- Analyze the environmental context of human development, and its potentials and constraints
- Integrate environmental key issues with other issues of sustainable development (social, economic, and institutional)
- Provide inputs for planning of sustainable development policies or strategic plans
- Raise awareness and generate commitment by active involvement of a variety of participants.

The methodology has 10 steps, which are distributed into four main clusters:

Cluster I: Analysis of ecological system-human society context

- Step 1: Identification of main stakeholders and environmental functions
- Step 2: Analysis of trends of environmental functions and cause-effect chains
- Step 3: Assessment of impacts of current environmental trends on human society
- Step 4: Definition of norms, standards, and thresholds involved.

Cluster II: Problem analysis

- Step 5: Problem definition, based on insights from Steps 1–4
- Step 6: Problem analysis, finding root causes and actors.

Cluster III: Opportunity analysis

- Step 7: Inventory of opportunities—long list and short list
- Step 8: Opportunity analysis, defining potentials for realization.

Cluster IV: Strategic planning and follow-up activities

- Step 9: Synthesis, defining inputs for a policy and a strategic plan for sustainable development
- Step 10: Setup of (environmental) monitoring system and other follow-up activities.

The 10 steps of the SEAN tool are meant to be fulfilled by a through, consultative process. Participants in the SEAN process include first of all the owner (of the final product), possibly assisted by a reference group. A moderator, a core SEAN team (consisting of local people), and representatives from relevant actors (government, NGOs, donors, local groups, and other stakeholders). The principles of this process are:

- Application as early as possible in the decisionmaking process
- Initiating a process that is initially open-ended and continuous
- Broad participation, involvement of insiders and outsiders
- Synergy by clustering opportunities, win-win options, and building alliances
- Transparency and use of objective criteria when setting priorities and taking decisions
- Limited external support and facilitation
- Strategic decisionmaking.

The SEAN methodology is far more comprehensive than the EO and the E-test, and is documented in a Dutch funded Web site, a SEAN reader, and different training material. The time required for the whole SEAN process varies greatly, from 4 to 18 months, depending on variables such as existence of data information, experience and expertise of the core SEAN team, level and complexity of application, and so on. The funding required for the whole process varies even more, between roughly $20,000 and $100,000, according to AIDEnvironment (1999).

Appendix D

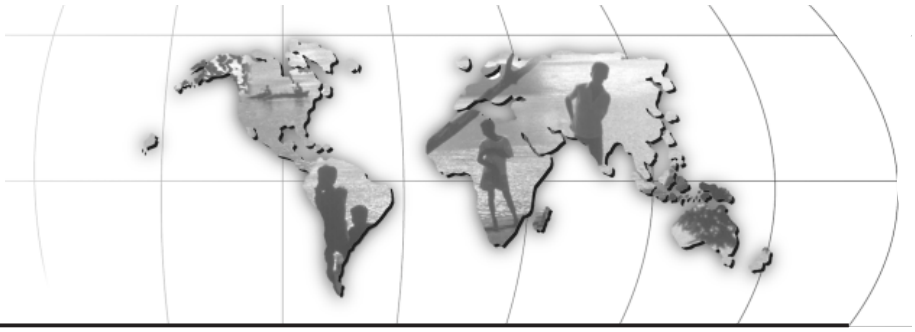
People Consulted

World Bank		
Environment department	*Regional environment and social units*	*Task Man agers, Sector Specialists, Others:*
David Hanrahan	Rob Crooks	Suman Babbar
Stephen Lintner	Guy Alaerts	Chris Barham
Robert Goodland	Jostein Nygaard	Fabio Galli
Jean-Roger Mercier	Charlotte Bingham	Theodore Herman
Rusdian Lubis	Arne Dalfelt	Abel Mejia
Ken Green	Sherif Arif	Charles Feinstein
Kirk Hamilton	Allan Rotman	David Grey
Magda Lovei	Konrad Ritter	Jakob Granit
Kristalina Georgieva	Richard Ackermann	Hernando Garzon
John Dixon	Anil Somani	Michele de Nevers
Hans-Olav Ibrekk	John Redwood	Osvaldo Feinstein
Tor Ziegler	Teresa Serra	Fernando Manibog
Inger Andersen	George Ledec	
	Juan David Quintero	
	Ina-Marlene Ruthenberg	
	Dan Aronson	

External SEA Specialists		
Barry Sadler, Institute of Environmental Assessment—leading SEA expert internationally	Terje Lind, Ministry of Environment, Norway—central to development of international SEA guidelines	Rodrigo Jiliberto, TAU Group, Spain—coordinator for large EU program on SEA

Notes

1. See, for example, Annandale and others (2001), where a team of international experts, including two senior professionals of the Asian Development Bank, argue for a systematic integration of SEA in multilateral development finance.
2. Sadler and Verheem (1996) define "project" as "a proposed capital undertaking, typically involving the planning, design and construction of a large scale plant, facility or structure."
3. This overview is based on Rossouw and others 2000.
4. Under the European Economic Area Agreement, to which Norway is a party, this and other EU Directives apply although Norway is not a member of the EU.
5. The table does not include SEAs in the Netherlands. However, the study also reviewed the SEA experience of that country and found that responsible authorities considered most SEAs to score high on the 10 benefit categories.
6. The analysis in this part of the report is based in part on reviewing several recent sectoral and regional EAs, and in part on an unpublished review by ERM (1999), which examined a number of sectoral and regional EAs supported by the Bank in recent years. Some of the case studies in Annex 2 draw heavily on the ERM review, complemented by new observations and analysis.
7. With regards to the experience with project-level EA and other analytical instruments, they were generally introduced in laws and regulations—and, for that matter, Bank policy—only afer considerable investments in research, testing, and learning.



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