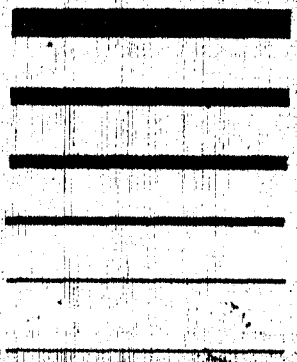


Fiscal 1993



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WORLD BANK PHOTO

Threshing barley in Ethiopia. "Economic development and sound environmental management are complimentary aspects of the same agenda. Without adequate environmental protection, development will be undermined; without development, environmental protection will fail." (World Development Report 1992: Development and the Environment)

THE WORLD BANK and the
ENVIRONMENT

Fiscal 1993

The World Bank
Washington, D.C.

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This report was prepared by the Environment Department of the World Bank in close collaboration with the regional Environment Divisions and Country Operations Departments. The team was led by Andrew Steer and Marian Mabel, and included Barbara Lausche, Ernst Lutz, Jocelyn Mason, John Redwood, Phil Paradine, Salenna Wong, and Feng Wang. The report was edited by Michael Prest, Virginia Hitchcock, and Joanne Ainsworth. Mohamed T. El-Ashry provided guidance.

Preface

In 1987 the World Bank embarked on a major effort to incorporate environmental concerns into all aspects of its work. Progress reports were prepared for the Development Committee in 1987, 1988, and 1989. In 1990 it was decided to initiate a series of annual reports to document progress and ensure that the lessons of success and failure are put to good use.

This is the fourth annual report in the series. It sets out the principal environmental activities of the Bank (IBRD and IDA) during fiscal 1993 (the period from July 1, 1992, to June 30, 1993) and its future initiatives, in the context of the agreements reached at the United Nations Conference on Environment and Development and the findings and recommendations of *World Development Report 1992: Development and the Environment*.

Abbreviations and Acronyms

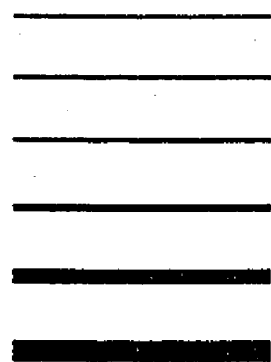
Agenda 21	Primary policy document agreed at the Earth Summit
ARPP	"Annual Report on Portfolio Performance"
ASTAE	Asia Alternative Energy Unit
CEE	Central and Eastern Europe
CEM	Country economic memorandum
CGIAR	Consultative Group on International Agricultural Research
EA	Environmental assessment
EDI	Economic Development Institute of the World Bank
ESD	Environmentally sustainable development
ESMAP	Energy Sector Management Assistance Program
GDP	Gross domestic product
GEF	Global Environment Facility
IAIA	International Association for Impact Assessment
IBRD	International Bank for Reconstruction and Development
ICZM	Integrated coastal zone management
IDA	International Development Association
IPM	Integrated pest management
MARPOL	Protocol on Prevention of Pollution from Ships
MEIP	Metropolitan Environmental Improvement Program
METAP	Mediterranean Environmental Technical Assistance Program
NEAP	National environmental action plan
NGO	Nongovernmental organization
OD	Operational Directive
ODS	Ozone-depleting substance
OED	Operations Evaluation Department
OP	Operational Policy
PTI	Program of Targeted Interventions
RAINS-ASIA	Regional Acidification Information and Simulation in Asia

RAINS-EUROPE	Regional Acidification Information and Simulation in Europe
SDR	Special drawing rights
UMP	Urban Management Program
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHS	United Nations Center for Human Settlements
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
URBAIR	Urban air quality management strategy and action plan



CURT CARNEMARK

Farmers working rice paddies in Indonesia. World food production will need to double over next 40 years. Achieving this will require much better management of environmental resources than in the past.



Overview

An important transition is under way in the World Bank's environmental work.¹ Its key elements include a shift in emphasis from the design and codification of Bank policies to supporting their implementation on the ground; a stronger focus on the development of institutional capacity for environmental management at the country level; a greater recognition of the need to embed environmental concerns into sectoral work; and increased emphasis on the social aspects of environmentally sustainable development. The twelve months since the United Nations Conference on Environment and Development (UNCED) have seen important progress in this transition. Bank lending to strengthen environmental policies and institutions rose sharply, the skills base within the Bank was substantially broadened through targeted recruitment and training, and the reorganization of the Bank's environmental work has significantly strengthened the capacity for environmental work in the country departments and is facilitating more effective interdisciplinary and "structured learning" approaches to the operational support and analytical work of the central departments. Highlights of this year's environmental activities are presented in the box on the following page.

Although progress has been substantial, it is not enough, of course. There remains a large unfinished intellectual agenda: many basic key relationships between development and the environment remain poorly understood, and the Bank is still on the steep part of the learning curve on numerous key institutional and policy issues. Meeting the rapidly growing requests from borrower countries for technical and project support for the environment will require substantial further strengthening of its technical skills base. And the rapid expansion of environmental lending and the Bank's relative inexperience with environmental projects will require a stronger emphasis on supervision and on building partnerships with other agencies and nongovernmental organizations NGOs.

The World Bank and the Environment: Highlights from Fiscal 1993

Among the highlights in the year following the Earth Summit:

- *Financial Resources for Environmental Management.* In fiscal 1993, the World Bank committed a record \$2 billion for twenty-three new loans and credits to assist developing countries in environmental protection and improvement. This represented a near doubling over the previous year and a thirty-fold increase over lending five years ago (chapter 1). In addition to these specifically environmental investments, the Bank expanded its financing of pro-environmental development activities in the past year. Commitments rose to \$180 million for population activities and \$2 billion for education. Lending specifically targeted toward the poor and most vulnerable rose to \$5 billion (chapter 3).
- *National and Regional Environmental Planning.* More than thirty countries have now prepared national environmental action plans with assistance from the Bank. This year the Bank also completed regional strategy documents for Asia, for the Sahel in Africa, and for the countries of Central and Eastern Europe; the third report was endorsed by European environment ministers, and follow-up actions were initiated. Regional programs, supported by the Bank, continued to address problems in the Mediterranean, Black and Baltic seas, and the Danube river basin (chapter 1).
- *Environmental Assessment (EA).* A major review of Bank experience with EA to date was completed and discussed by the Board of Executive Directors in April 1993. It found that EAs were having a significant and growing impact on project design and implementation and identified areas needing improvement (chapter 2).
- *Resettlement Issues.* The report of the Independent Commission on Narmada, (the Morse Report) identified serious weaknesses in project preparation and implementation, especially with regard to resettlement. In addition to preparing a remedial action plan for the specific project, the Bank embarked upon a major policy review of all its projects involving resettlement. This will be completed in early 1994 (chapter 2).

The World Bank's Fourfold Environmental Agenda

The World Bank's environmental activities—which involve policy dialogue, lending, technical assistance, research, and aid coordination—have four objectives:

- Assisting member countries in setting priorities, building institutions, and implementing programs for sound environmental stewardship

- **Global Environmental Challenges.** The past year has been a crucial one for the Global Environmental Facility, as it has moved toward the completion of the pilot phase and prepared for restructuring and replenishment. The Bank has also participated actively in the international discussions on the implementation of the Biodiversity and Climate Change Conventions and in the preparation of the Desertification Convention.
- **Organizational Strengthening.** A new Vice Presidency for Environmentally Sustainable Development was established in January 1993, bringing together the Environment; Agriculture and Natural Resources; and Transport, Water, and Urban Development Departments. In addition thematic teams were established to promote cross-departmental and interdisciplinary teamwork, and a new Social Policy and Resettlement Division was established in the Environment Department.
- **Enhanced Skills Base.** Recruitment during the past year has raised the number of full-time environmental specialists at the World Bank to around 200. A further 27 environmental specialists and 12 social scientists will be added in the coming year. Environmental training of Bank staff was also sharply increased, with more than 500 staff receiving training in the past year (chapter 5).
- **Project Implementation.** The Report of the World Bank's Portfolio Management Task Force (the Wapenhans Report) led to a detailed plan of action to strengthen project implementation. This has important implications for the effective implementation of the Bank's portfolio of environmental projects, which now stands at \$5 billion (chapters 1 and 5).
- **Policy Papers and Directives.** Several major policy papers and directives were completed during the year. Of note: the water resources management paper provides guidance on integrated water management in contrast to the fractured approaches of the past; policy papers on energy efficiency and conservation and on electric power outline practical approaches to demand management and transfer of energy efficient technologies; and an operational directive on agricultural pest management gives guidance for environmentally sound pesticide policies and the move toward integrated pest management.

- Ensuring that potential adverse environmental impacts from Bank-financed projects are addressed
- Assisting member countries in building on the synergies among poverty reduction, economic efficiency, and environmental protection
- Addressing global environmental challenges through participation in the Global Environment Facility (GEF).

The four chapters of part I of this report are organized around this fourfold agenda. Part II of the report addresses how the Bank is endeavoring to equip itself for the task and how it is actively building partnerships with the international community.

Assisting Countries in Environmental Stewardship

Chapter 1 describes the Bank's efforts to help countries improve their environmental management. Three elements are involved here: providing financial resources for environmental investments, providing support for national and regional environmental planning exercises, and deepening and disseminating knowledge about environmentally sustainable development.

FINANCING ENVIRONMENTAL PROJECTS. In the past twelve months, the Bank committed a record \$2 billion in new loans and credits for twenty-three projects specifically designed to strengthen countries' capacities for environmental management.² This represents a near doubling of the commitments of the previous year and a thirtyfold increase in lending from that in 1989, the first year the Bank prepared a progress report on its environmental activities. World Bank financing for the environment is for three broad types of projects. Lending for *pollution control and the urban environment* (the "brown" agenda) amounted to \$1.3 billion in fiscal 1993 and included large projects for the control of water pollution in Brazil, China, Korea, and Turkey, and for air pollution control in India and Mexico. Lending for *natural resources and the rural environment* (the "green" agenda) amounted to \$521 million in fiscal 1993 and included projects for water resource and land conservation and management in Egypt, India, Pakistan, and Turkey; for natural habitat protection in Egypt, Gabon, Seychelles, Tunisia, and Venezuela; and for integrated pest management in Indonesia. Lending for *environmental institution building*, which traverses the "brown" and "green" agendas, amounted to \$173 million and included projects in Bolivia, Chile, China, Ghana, Korea, and Pakistan.

THE PERFORMANCE OF ONGOING PROJECTS. There are now more than 100 Bank-financed environmental or forestry projects under implementation in fifty countries, representing Bank commitments of some \$5 billion and total investments of almost \$13 billion. To these figures must be added the large number of smaller investments that are components of energy, agriculture, water supply and sanitation, and other loans.

Evidence from the "Annual Report on Portfolio Performance, Fiscal 1993" and from special regional and country reviews suggests that the

performance of environmental projects is about the same or slightly better than that of the Bank's portfolio as a whole. However, this should provide no grounds for comfort; the rapid expansion of environmental lending means that most of the projects are still young, and, given the strong focus on institution building in many of the projects, the need to work across government departments, and the common lack of natural "constituencies" for environmental policies, it is clear that strong efforts will be required to ensure that the portfolio of environment projects performs well. Commonly identified problems to date include weak technical and managerial capacity of environmental agencies, inadequate performance indicators, and insufficient environmental expertise on Bank supervision missions.

NATIONAL AND REGIONAL STRATEGIES. The Bank has expanded its support for the preparation of national and regional environmental strategies. By early September 1993, twenty-two active International Development Association (IDA) borrowers had completed national environmental action plans (NEAPs) or equivalent documents. These plans are prepared by country authorities—consistent with commitments made under Agenda 21³ to prepare national sustainable development plans—but often with analytical support from the Bank and other agencies. Several of the earliest action plans—such as those prepared by Egypt, Ghana, Seychelles, and Sri Lanka—are now entering the implementation phase as new environmental investments have been appraised and approved by the Bank, the GEF, and other donors during the past year. Non-IDA borrowing countries are also being encouraged to develop NEAPs, and many countries have already completed such plans (for example, Bulgaria, Cyprus, Mauritius, Poland, Seychelles, and Tunisia).

The quality of the NEAPs has been quite varied, and it is important that these plans be recognized as the first step in a continuing process. Experience to date suggests that the preparation of action plans is most successful when it involves those responsible for economic as well as environmental decisionmaking and when there exists a methodology for identifying priorities and policies that is understood and accepted by all participants. Strong emphasis has been put on the countries' developing and maintaining ownership of their action plans and on the participation of the people likely to be affected by them. As a result, the time taken to prepare them is difficult to predict and has been much longer than initially anticipated, especially in Africa.

The past year saw expanded Bank involvement in the preparation of regional strategies. Comprehensive regional analyses were completed for Asia, the Sahel, and central and eastern Europe. This latter report was the focus of a meeting of environment ministers from eastern and western Europe in Switzerland in April 1993; the proposed strategy was

fully endorsed and follow-up actions were initiated. Several regional seas and river basins programs also made important progress this year, with active Bank support. Phase II of the Mediterranean Technical Assistance Program was launched, as was the Black Sea program, and the Bank continued its financial and technical support of the Baltic Sea and Danube river basin programs.

DEEPENING AND DISSEMINATING KNOWLEDGE. Environmental policies, projects, and plans are only as good as the knowledge upon which they are based. The Bank's program of policy, analysis, and research grew in fiscal 1993 and yielded several important policy and best-practice papers. Four important sets of policy guidance became operational during the year. The Water Resources Management paper, approved by the Board of Directors in May 1993, advocates and provides detailed guidance for a comprehensive, cross-sectoral approach to the sector as a means of overcoming the fragmentation that characterized earlier sub-sectoral initiatives. An Operational Policy Directive on Forestry was issued in March 1993 to guide staff involved in implementing last year's paper on forestry policy. An agriculture sector review paper, endorsed by the Board of Directors, highlights the links between productivity, natural resource management, and the environment. And an Operational Directive on Agricultural Pest Management provides detailed guidance on environmentally sound pesticide policies and the move toward integrated pest management. Annex A lists operational policies that guide the Bank's work on environmental and social issues.

To ensure that the Bank's research and analytical work program remains grounded in operational reality and is multidisciplinary in approach, six "thematic teams" have been established this year in the Vice Presidency for Environmentally Sustainable Development. These teams cover land management, water resources, the urban environment, social policy, the poverty-gender-environment "nexus," and concepts, indicators, and methodologies for environmentally sustainable development. An important task for this sixth team will be to lead the Bank's work in identifying indicators of sustainable development and in following up "Toward Improved Accounting for the Environment," published in fiscal 1993 by the World Bank and the United Nations Statistical Division.

Assessing and Mitigating Adverse Impacts of Bank-Financed Projects

To be effective, the Bank's lending must be environmentally and socially sustainable. Chapter 2 addresses current efforts to ensure that any potential adverse impacts from Bank-financed investments are adequately assessed and mitigated.

SOCIAL DIMENSIONS OF ENVIRONMENTAL MANAGEMENT. In recognition of the integral role that social considerations play in natural resource management a new division of Social Policy and Resettlement was established in the Environment Department in early 1993. Its mandate is to provide operational support, policy guidance, and intellectual leadership on issues of social assessment, resettlement, indigenous peoples, cultural property, and local participation. During the coming year this group, in conjunction with the new thematic team on Social Policy, will be preparing social assessment guidelines for use by project officers.

Building on the Positive Synergies between Development and the Environment

In addition to specific environmental interventions, the Bank has continued to expand its support for development activities that also have potentially large benefits for the environment. These positive synergies between development and the environment—a central message of the Earth Summit—are the theme of chapter 3. Two propositions are now widely agreed. First, reducing poverty and strengthening human development are essential for environmental sustainability. Second, policies to promote the efficient use of resources benefit both the environment and the economy. This year the Bank has expanded its activities in both areas.

Lending specifically targeted to the poor and most vulnerable, monitored under the Program of Targeted Interventions (PTI), rose to \$5 billion for seventy-three projects. Lending for population programs also rose to \$180 million and is expected to reach \$200 million in the coming fiscal year; sixty population projects, representing more than \$1 billion in commitments, are now under implementation. The Bank also made thirty-two loans and credits, amounting to nearly \$2 billion, for education in fiscal 1993; most of these projects included special components to improve the quality of female education and encourage higher enrollment. Other lending activities benefiting both the poor and the environment included twelve water supply and sanitation projects, amounting to \$1 billion, and projects to strengthen land tenure for poor farmers and urban squatters in Latin America and Africa. Bank-supported research on sustainable agriculture in low-income areas also expanded, through the Consultative Group on International Agriculture Research (CGIAR).

The Bank has also continued to support countries' efforts to promote the efficient use of resources. Two major policy papers—on energy efficiency and conservation and on electric power—were completed and discussed by the Bank's Board of Directors this year. They explore practical approaches to demand management and the transfer of energy-

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efficient, pollution-reducing technologies and demonstrate the crucial importance of energy pricing in efficient resource use. Progress in removing energy subsidies in borrower countries (still amounting to more than \$230 billion) has been disappointing, and the policy papers recommend a tighter focus on this and other efficiency measures in country dialogue. In the past twelve months, the Bank made twenty-four energy sector loans, each of which supports energy efficiency, and the Energy Sector Management Program restructured its work program to give greater emphasis to environmental and efficiency concerns.

Removing subsidies to other natural resources, such as water, wood, and pesticides, by encouraging full cost recovery, also continues to be an important component of Bank lending. Adjustment lending (twenty-five loans and credits in fiscal 1993) remains an effective tool for supporting countries' efforts to remove wasteful distortions. A growing number of adjustment loans include environmental components, and some—such as the fiscal 1993 Honduras Energy Adjustment Loan—now explicitly address environmental concerns.

Addressing Global Environmental Challenges

Chapter 4 describes how global environmental concerns are increasingly being incorporated in the Bank's work. The past year has seen analytical progress in the valuation of global costs and benefits, innovative IDA lending for renewable energy in India, and active Bank participation in the international discussions on the implementation of the Biodiversity and Climate Change conventions and in the preparation for the Desertification Convention. Biodiversity strategies have been completed or are under way for the Asia-Pacific, Latin America and the Caribbean, and Africa regions. The most direct Bank involvement with addressing global environmental challenges is through its role as implementing agency for the Global Environment Facility and the Montreal Protocol.

The past year has been a crucial one for the GEF, both with regard to moving toward a successful conclusion of the pilot phase and in preparing for replenishment and restructuring of the facility. As of June 1993, commitments of \$468 million had been made for fifty-three investment projects under way or endorsed by the participants and managed by the World Bank. Nine investment projects approved by the Bank in the past twelve months (totaling \$70 million) have sought to promote renewable energy in India and energy conservation in Thailand; conserve biodiversity in Belarus, Bolivia, Congo, Ghana, and Turkey; and reduce pollution in international waters (and protect aquatic biodiversity) in Egypt and the Seychelles. The past year has also seen progress on

participatory approaches to designing and implementing projects and initiating research on incremental costs.

Participating governments are currently working out details of the restructured GEF. The replenishment process began formally at the Beijing Participants' Meeting in May 1993, where many donors supported the view that a replenishment of SDR 2 billion to 3 billion (\$2.8 billion to 4.2 billion) for a period of three to four years was an appropriate range to aim for in the replenishment discussions. Both restructuring and replenishment processes are scheduled for completion by December 1993.

The Bank is also an implementing agency of the Multilateral Fund of the Montreal Protocol, which provides funds to help developing countries phase out all ozone-depleting substances by the year 2010. The Bank's portfolio of Montreal Protocol investment operations totals nearly \$70 million for seventeen investment operations.

Building Capacity for the Task

Implementing the Bank's large environmental agenda described in Part I requires the institution to strengthen its own internal capacity for environmental work and to improve communication and collaboration with the international community. The last two chapters in this report address these issues.

Equipping the Bank

The rapid expansion of the Bank's environmental activities, coupled with concerns about project implementation, have called for substantial internal capacity building during the past year (chapter 5). The establishment of a new Vice Presidency for Environmentally Sustainable Development, incorporating the Environment, Agriculture and Natural Resources, and Transport, Water and Urban Departments, is helping shift the focus from "environment" and "development" as separate perspectives to "environmentally sustainable development." Equally important, a substantial strengthening of environmental skills is under way at the country operations level. Each country department now has an environmental coordinator to serve as technical adviser and contact point for environmental issues, and almost half of the country departments now have environmental units.

There are now about two hundred full-time environmental specialists at the Bank—an increase of about twenty-five since a year ago and a sharp contrast to the five environmental specialists at the Bank in the mid-1980s. Many factors suggest that it will be necessary to increase the

number of technical specialists further. Lending for environmental projects is expected to rise in each region; in Asia it is expected to double between the periods 1990-92 and 1993-95. The first generation of Bank-supported stand-alone environmental projects is only three to four years old (the number under implementation doubled in 1991 and again in 1992) and will require careful supervision. And the number of "first-round" NEAPs will nearly double in 1994 and then move into the implementation stage. Finally, the need for social expertise in support of resettlement components is certain to rise. A skills assessment exercise, recently completed, concluded that about sixty-five additional environmental specialists will be needed during the next three years, divided roughly equally between "pollution" specialists, biologists, and ecologists and sociologists and anthropologists. To meet this need, the president of the Bank has endorsed the creation in 1994 of twenty-seven new positions specially for technical environmental specialists and twelve new positions for social scientists.

In addition to recruitment, staff training has also been given greater emphasis this year, with twenty-three courses being taught and more than five hundred Bank staff participating. For the coming year, in addition to an enhanced program of technical skills and environmental economics, a broad-based course on the fundamentals of environmental management will be developed, with the goal of deepening understanding of environmental concerns among all Bank staff members.

The World Bank and the International Community

Implementing the Bank's environmental agenda requires building partnerships and effective communication with the international community (chapter 6). At the multinational level the Bank has been active in the follow-up to UNCED through interagency discussions, support to the new Commission on Sustainable Development, and through an expanded program of operational partnerships with regional and multilateral agencies. This year has also seen a more proactive program of consultations on environmental issues with bilateral donor agencies. One-fifth of the environmental projects financed by the Bank were cofinanced with bilateral agencies, and some \$7 million in bilateral trust funds finance analytical work and technical support through the various environment units at the Bank.

The Bank continues to build partnerships with NGOs. This year witnessed some rewarding results and some strong disagreements. NGOs participated actively in discussions on Bank policy and strategy papers (such as those on forestry, water, agriculture, energy, and biodiversity) and in the review of environmentally sensitive projects. Particularly

valuable are discussions at the country level with operational NGOs that have technical expertise in the environment. NGOs are also playing an important role in facilitating effective participation in environmental project preparation and in EA preparation.

The Bank's Economic Development Institute expanded its environmental activities during the past year, having organized fifteen major training activities for Bank borrowers. Drawing from Bank and borrower experiences in environmental management, these courses covered methodological issues of valuation and environmental economics and specific policy and institutional issues associated with biodiversity, pollution, forestry, and environmental assessment.

Further, in recognition of the need to stay abreast of the rapidly evolving knowledge base, an annual international conference on environmentally sustainable development will be initiated in 1993, to be held each year in conjunction with the Bank's annual meetings. This flagship conference will consider issues central to environment and development, including lessons of experience in the transition from policy to practice and discussion of innovative approaches to environmentally sound development.

More broadly, the Bank is recognizing the need to expand its communications network generally to the public at large. A growing publications list of environmental technical papers, newsletters, and best-practice materials were produced during the year covering a widening range of subjects in increasingly varied formats to reach the largest possible audience. The most widely disseminated publication has been the "Environmental Bulletin," published quarterly by the Environment Department, with 25,000 subscribers—including NGOs, United Nations agencies, governments, academics, and individuals. The technical publication in most demand this past year was the *World Development Report 1992: Development and the Environment*, with more than 90,000 copies being distributed worldwide. The Bank's External Affairs Department has given priority to the environmental issues in its outreach programs and has also managed the production and distribution of several environmental films.

The Challenge Ahead

Last year's annual report on the environment emphasized the need to move from the first phase of environmental work at the Bank—one characterized by efforts to raise consciousness and establish guidelines and directives—to a second phase, in which the focus is on implementation and ensuring that actions correspond with agreed principles. The Earth Summit, the completion of the *World Development Report 1992* and

other key policy and analytical documents, the findings of the Morse and Wapenhans Reports, and the establishment of the new Vice Presidency for Environmentally Sustainable Development, have reminded us of the need for such a transition and empowered us for the task. This transition is well under way, but not yet complete.

The key challenges that lie ahead to improve the Bank's effectiveness on the environment are the same as those to improve the Bank's effectiveness more generally, as laid out in the follow-up action plan to the Wapenhans Report. Careful supervision of the Bank's young and rapidly growing portfolio of environmental projects, learning from this process and building on analytical and best-practice work so as to improve the quality of future projects at entry, and promotion of participation and country ownership of national environmental action plans, environmental assessment processes, and Bank-financed environmental projects will be essential to further progress.

Notes

1. The "World Bank" as used in this report, refers to the International Bank for Reconstruction and Development (IBRD) and its affiliate, the International Development Association (IDA). The IBRD has two other affiliates, the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA). The Bank, the IFC, and MIGA are sometimes referred to as the "World Bank Group."

2. All dollar amounts are current U.S. dollars except where noted. A billion is 1,000 million.

3. Agenda 21 is the primary policy document agreed by countries at the Earth Summit. For further details on Agenda 21, see *The World Bank and the Environment, Fiscal 1992*.



WORLD BANK PHOTO

Villagers in Burkina Faso make use of a newly built artesian well. One billion people in the world still lack access to clean water and more than 1.7 billion do not have adequate sanitation facilities, making these among the most urgent of all environmental problems.

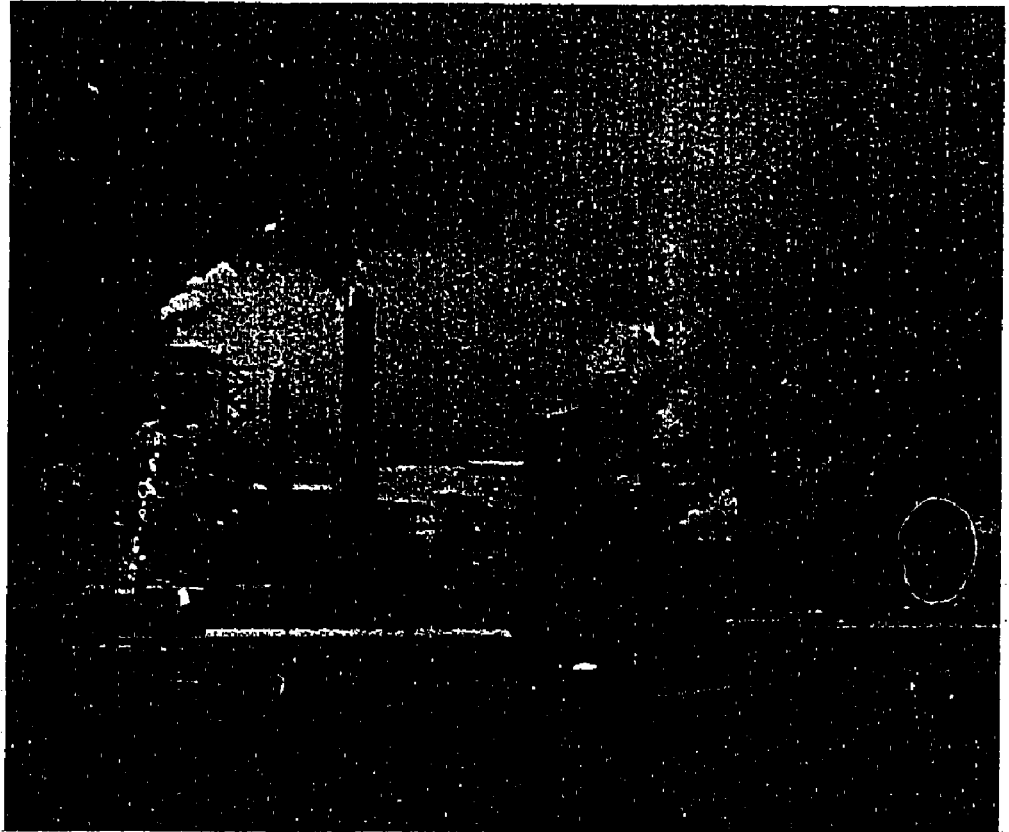


PART I

The World Bank's Fourfold Environmental Agenda

Part I of this report consists of four chapters corresponding to the fourfold environmental agenda described in the Bank's statement to the first meeting of the UN Commission on Sustainable Development in June 1993. In seeking to play its role in response to the Earth Summit imperative, the Bank's task is:

- To help member countries to set priorities, build institutions, and implement programs for sound environmental stewardship
- To ensure that potential adverse environmental impacts from Bank-financed projects are addressed
- To help member countries build on the complementarities among poverty reduction, economic efficiency, and environmental protection
- To address global environmental challenges through participation in the Global Environmental Facility.



INTER-AMERICAN DEVELOPMENT BANK

Industrial emissions in Brazil contribute to dangerous levels of air pollution. This year the World Bank provided \$2 billion for improving environmental management in developing countries. More than half of this amount was aimed at combatting the problems of urban and industrial pollution.

1. Assisting Countries in Environmental Stewardship

In the year since the United Nations Conference on Environment and Development (UNCED, also known as the Earth Summit) in Rio de Janeiro, the World Bank has expanded its efforts to help developing countries improve the management of their environment.¹ It has provided considerable additional support for preparing and implementing environmental strategies, has substantially increased lending targeted for the environment, and has continued to undertake research and to disseminate new lessons, examples of best practice, and its improved understanding of a wide range of environmental issues. In the process the Bank has broadened the focus of its environmental activity from the project level to the sectoral, countrywide, and regional levels and has continued to progressively integrate environmental concerns throughout its work. This chapter reviews the steps taken by the Bank during the past twelve months to help borrowing countries improve their stewardship of natural resources to ensure sound economic and environmental development.

The task is not a simple one. To meet the complex challenges of environmentally sustainable development, the Bank is concentrating its assistance in three key areas, around which this chapter is organized.

- *Defining strategies.* A lack of environmental development strategies often limits a country's ability to prioritize environmental problems and define adequate responses to them. Improved environmental planning can help ensure that scarce financial and institutional resources are used to maximum effect. Many borrowers have now completed national environmental action plans with help from the Bank and other donors. The Bank has also proposed environmental management strategies for several countries and regions.
- *Lending for environmental management.* Limited financial resources frequently preclude needed investments to protect the environ-

ment. Bank funding helps countries reap the substantial economic, environmental, and social rewards of such investments. In the past twelve months Bank lending for primarily environmental projects totaled a record \$2 billion.² Furthermore, as a growing number of environmental projects and components come under implementation, the Bank—and policymakers in general—are learning important lessons about the obstacles to promoting sustainable development in the developing world and how to overcome them.

- *Expanding and disseminating knowledge.* Environmental planning and investment are only as good as the knowledge on which they are based and the institutions that must implement them. Yet much remains to be learned about the conceptual underpinnings of sustainable development and even about basic environmental facts, and methodologies for integrating environmental and economic concerns remain underdeveloped. The Bank's research and project work on the environment deals with these shortcomings. Many borrowers also have difficulty addressing environmental problems because they lack sufficient policy guidance, adequate legal and institutional frameworks, and vital expertise. In response the Bank actively disseminates policy guidelines and best practices and provides direct technical assistance for institutional strengthening.

Defining Strategies

Agenda 21, the main operational product of the Earth Summit, calls for states to adopt "country-driven" sustainable development strategies. Such strategies must prioritize environmental problems and identify their direct and underlying causes; determine investment needs, including the need for external financing; and outline appropriate policy and capacity-building interventions. In the past year the Bank has continued to provide technical assistance to borrowing countries for the preparation of national environmental action plans. Increasingly, these national-level planning frameworks are complemented by country and regional environmental strategies and studies.

National Strategies

National level environmental strategies provide a framework for integrating cross-sectoral environmental concerns into the broader context of a country's economic and social development program. The Bank supports countries' environmental planning efforts through national environmental action plans and country strategies and economic studies.

NATIONAL ENVIRONMENTAL ACTION PLANS. One of the most important ways the Bank helps borrowers to improve environmental management is to help elaborate and implement national environmental action plans (NEAPs). These plans describe the country's main environmental problems and identify policies, institutional measures, and investments to address them. They are meant to be continuously refined as new information emerges and priorities change. Further, NEAPs (along with other Bank environmental work) provide the Bank with a basis for dialogue with borrowers on environmental issues and contribute to the Bank's own country assistance strategies. While national governments are responsible for preparing and implementing the plan, the Bank can provide advice and help arrange technical assistance. The process by which the Bank supports action plan preparation was formalized in July 1992, in "Operational Directive 4.02, Environmental Action Plans." (See annex A for other operational policies for environment).

By early September, some twenty-two active IDA-eligible countries had completed NEAPs or equivalent documents. This includes Albania, Benin, Bhutan, Bolivia, Burkina Faso, China, Egypt, The Gambia, Ghana, Guinea-Bissau, Honduras, Lesotho, Madagascar, Maldives, Nepal, Nicaragua, Nigeria, Pakistan, the Philippines, Rwanda, São Tomé and Príncipe, and Sri Lanka.³ Preliminary documentation and consultations are well under way in all active IDA borrower countries. The majority of IDA borrowers is in Africa, and in that region the NEAP process has taken longer than in some other regions because of the special emphasis given to building a demand-driven, participatory process to bring environmental concerns to the mainstream of development planning and simultaneously to build local environmental capacity as part of the NEAP process. Other Bank borrowers are also being encouraged to develop such plans, and several non-IDA countries have already completed them (for example, Bulgaria, Cyprus, Mauritius, Poland, the Seychelles, and Tunisia).

During the past three years the Bank and its borrowers have learned a great deal about preparing environmental plans. Some of these lessons from country experience are highlighted in box 1-1. The concept and practice of preparing environmental strategies are new to many countries, and it is important that emerging lessons from experience be shared among countries and practitioners. The Bank actively supports this exchange of information and expertise. Thus, for example, the Network for Environment and Sustainable Development in Africa, based in Abijan, provides a forum for information exchange and is funded by donors under the tripartite leadership of the World Bank, the African Development Bank, and the United Nations Development Programme (UNDP). Comprised of experienced African environmental experts (drawn mainly from national teams involved in the development of

Box 1-1. Lessons from the Preparation of National Environmental Strategies

Several lessons emerge from Bank experience with environmental planning at the national level.

- Preparing an environmental action plan should be recognized as the first step in a continuing process of national-level policy development and decisionmaking for environmental management. In some cases this has not been fully understood, the analysis has not been strong enough to sustain an evolving process, and the countries' environmental priorities have not been sufficiently well defined.
- For any environmental strategy to succeed, all relevant parties should be included in the planning process. Participation and collaboration at the local and national levels is essential if the plan is to be effective in practice. This principle was illustrated in Guinea, where a first unsuccessful attempt by a government ministry to elaborate a NEAP later proved successful once a local NGO was hired to prepare the plan, under the guidance of a government steering committee.
- A plan is more likely to be effective when its preparation involves those responsible for economic, as well as environmental, decision-making. In Nicaragua, for example, the fact that the Ministry of Economics is the lead coordinating agency, with technical support from other line ministries, has raised the political status of the document and thus increased the chance of effective implementation.
- Solid analytical work is essential to determine priorities for action. The stronger the analytical basis of the plan's findings, the better the chances that the plan will be implemented successfully. In the preparation of the Central and Eastern Europe Environmental Action Programme, for instance, analysis of environmental health issues and initial comparisons of costs and environmental benefits among alternative investment programs pointed to clear priorities and facilitated the plan's acceptance.
- The cross-sectoral nature of the underlying causes of environmental degradation needs to be carefully analyzed. Analysis in Madagascar, for example, explicitly recognized that key environmental problems are seriously aggravated by unsustainable agricultural development, stagnant urban economies, continuing rapid population growth, sectoral policy and price distortions, and political uncertainties. Policies that fail to address such issues will not succeed.

country action plans), the network advises African countries undertaking national environmental action plans. Also in Africa, preparation, funding, and implementation of NEAPs in Madagascar and Rwanda have been supported by a multi-donor secretariat comprised of the World

Bank, the African Development Bank, bilateral aid agencies, and international nongovernmental organizations (NGOs). Further, the Bank's country department for Southern Africa is supporting formulation of NEAPs through environmental support programs, which are prepared by each country in the region and involve all interested donors. These programs provide a mechanism to undertake the often lengthy studies required for a better understanding of a country's environmental problems as well as for a framework for donor cooperation.

The Bank also helps countries formulate environmental policy by preparing country environment strategies and reports, which aim to help borrowers to integrate environmental concerns into government activities, including the identification of projects for which external funding is anticipated. A recently completed report on Mexico illustrates this type of assistance. Developed in collaboration with the Mexican government, this report emphasizes the need simultaneously to pursue environmental concerns in particular regions (Mexico City and the Gulf Coast region and along the U.S. border) and in particular sectors (water supply and sanitation, solid- and toxic-waste management, natural resources management, and the control of industrial pollution). Specific recommendations are made on the balance between market-based and command-and-control investments, institutional capacity for environmental management at each level of government, and expenditure planning for environmental investments.

Another example is a study being prepared for Iran, which is to be completed in early 1994. Focusing on five broad areas—the national legal and institutional framework, the macroeconomic and policy framework, urban air and water pollution, natural resource degradation, and marine pollution—its results will provide a basis for the environmental strategy and help orient the design of investment projects. Similarly, a country study for Guinea-Bissau identifies near-term project and policy interventions as components of a national strategy, including interventions in the agriculture, forestry, fisheries, water and sanitation, energy, and social sectors. Similar strategy studies for countries such as Belarus, Jamaica, Lao People's Democratic Republic, Ukraine, and Viet Nam also were initiated or completed during the past year.

COUNTRY ECONOMIC STUDIES. In addition to NEAPs and country environmental strategies, environmental issues are now increasingly covered in Bank country economic memoranda (CEMs) and other country-level economic studies. CEMs, which are produced on average every three years, are analyses of overall country economic conditions, from which strategies for improvement can be derived. These analyses are beginning to focus increasingly on environmental issues. In some cases the envi-

ronment is seen to play such a critical role in economic performance that it is featured as a principal theme of the CEM. Environmentally focused CEMs or country studies have been completed for many countries.

- *Malaysia.* The country economic study, which focuses on urban pollution issues, finds that even though urban pollution in Malaysia is not as extreme as in many other East Asian countries, transport emissions and inadequate sewerage facilities are causing severe health problems; if left unattended, the effects of pollution could carry a heavy economic cost. The degradation of urban living conditions could also threaten Malaysia's attractiveness for tourism and foreign investment. The report concludes, however, that the costs of pollution abatement are small relative to the potential benefits involved, particularly if cost-effective strategies are implemented.
- *Thailand.* A Bank country economic study, "Managing Environmental Impacts in a High-Growth Economy," stresses that relatively new environmental problems, such as hazardous waste, are intensifying, while traditional ones, such as water contamination, still need to be resolved. However, the country's expected economic growth should make possible the investments required to improve environmental quality. With planning and timely action, policymakers have the opportunity to implement cost-effective control strategies.
- *São Tomé and Príncipe.* The recent economic report notes that while environmental problems are not yet severe or widespread in the country, future development is likely to cause additional pressures on the environment. Poor water quality, forest degradation, malaria, threats to biodiversity, steep slope erosion, loss of fisheries, improper handling of toxic and hazardous wastes, and coastal erosion are identified as issues of potential concern to be addressed at a very early stage of the country's development process. The report was discussed at a national workshop, and the principles identified in the strategy have been adopted for the country's NEAP.
- *Central and Eastern Europe.* As the Bank expands its work in this region, the impact and importance of environmental issues are being recognized early in the planning process and are addressed in CEMs prepared for Azerbaijan, Estonia, Kazakhstan, Latvia, Lithuania, Moldova, and Russia. For example, the Moldova CEM includes a review of environmental problems that will provide background for an energy and environment project to be launched in fiscal 1994 and is expected to improve the incorporation of environmental issues into agricultural operations.

- *Fiji, Kiribati, Marshall Islands, Micronesia, Solomon Islands, Tonga, Vanuatu, and Western Samoa.* An economic study of these eight Pacific Island countries concludes that environmental preservation takes on special importance for them because their resource base is fragile and the environment plays a primary role in the main sectors of their economies: agriculture, fisheries, and tourism. Policy options are discussed, and global concerns such as biodiversity conservation, possible sea level rise from global warming, and hazardous waste disposal are also recognized as relevant for these island economies.

Regional Strategies

Recognizing that environmental problems frequently cannot be resolved exclusively within national boundaries, the Bank is broadening its environmental strategy work to the regional level. Important examples of this approach during the past twelve months include regional environmental strategy papers, the continued development of programs for regional seas, and several planning initiatives for regional water resources management (detailed in box 1-4). Regional strategies for conserving biodiversity in the Asia-Pacific, Latin America and the Caribbean, and Africa regions have also been developed and are discussed in the context of global environmental initiatives in chapter 4.

REGIONAL STRATEGY PAPERS. A comprehensive Bank report on environmental issues in Asia has recently been completed. This review, "Toward an Environmental Strategy for Asia," found that countries in South and East Asia face worsening urban industrial pollution, atmospheric emissions, soil erosion, land degradation, and loss of biodiversity. Asia has also experienced the highest rate of deforestation among the world's tropical areas during the past ten years. Despite this negative picture the report concludes that there is room for optimism, given the increasing desire of Asian governments to incorporate environmental improvement among their development goals and the region's continued robust economic performance. The report describes options and principles that will help in formulating environmental management strategies to minimize the environmental damage that future demographic, urban, and industrial growth might otherwise cause.

This year the Bank also prepared a strategy to guide its assistance for environmentally sustainable development in Africa's Sahelian region. The broad range of issues examined include the area's limited resources, rapid population growth, increasing competition for land and water, declining agricultural performance, degradation of land, deforestation,

depletion of fisheries, threats to biodiversity, urbanization, and the environmental impact of economic policies. Institutional issues at the national, regional, and international levels were also considered. The strategy takes a multisectoral approach and puts forward strategic options combining increased investment in education, strengthened public and private institutional capacity for environmental management at the central and local levels, and integrated natural resources management.

An environmental action program for the countries of Central and Eastern Europe (CEE) was also completed this year and discussed at a conference of European environment ministers in Lucerne, Switzerland, in April 1993. The premise of the program is that the scarcity of available financial resources requires that priorities be set, particularly in the areas that affect human health. The program encourages consensus on environmental priorities among the CEE countries and between them and their donors. It endorses a mix of policy, investment, and institutional actions that require complementary commitments by the governments and aid agencies involved. Among the main priorities identified by the study are:

- Cutting air emissions from specific types of industrial plants
- Reducing particulate and sulfur dioxide emissions in urban areas, especially those linked to the use of coal in the household and service sectors
- Launching low-cost/high-gain programs (such as improved operation and maintenance, energy efficiency measures, and environmental audits) in the most polluting industrial sectors
- Protecting groundwater from wastewater discharges and hazardous wastes
- Undertaking selected municipal wastewater investments that could improve ambient water quality at low cost.

Although the proposed action program does not present a list of specific projects, it does contain an inventory of the main sources of pollution in the CEE countries, an extensive list of documented public health problems related to the environment, and an indication of the types of investment in different subsectors that are likely to be most cost-effective. The Bank is also preparing an inventory of the countries' most vulnerable ecosystems and measures to protect them. The strong common threads running through CEE countries justify adopting a regional approach to environmental management in these countries. The principal environmental problems are similar in nature and severity, and the simultaneous transition from central planning to market economies presents unique economic and environmental challenges and opportunities.

REGIONAL SEAS AND RIVER BASINS PROGRAMS. Bank-supported regional seas and riverine initiatives during fiscal 1993 include the Mediterranean Environmental Technical Assistance Program, environmental programs for the Black and Baltic Seas, and the Environmental Program for the Danube River Basin.

- *The Mediterranean Basin.* The Mediterranean Environmental Technical Assistance Program (METAP), which is funded primarily by the Commission of the European Communities, the European Investment Bank, the UNDP, and the World Bank, supports the development of environmental projects, the strengthening of environmental management capacity, and the establishment of environmentally sound policies among Mediterranean Basin countries. During the past year METAP focused primarily on implementing and completing the first stage of the program (1990–92) and initiating the second phase, which will extend through 1995. Seven project preparation activities—including industrial effluent control in Egypt and coastal zone management and marine pollution abatement in Turkey—and four policy studies—including environmental policy in Cyprus and biodiversity conservation in the basin as a whole—were completed during the year. The program likewise continued to support key regional entities such as the Mediterranean Cities Program, the Mediterranean Environmental Protected Areas Network, and the Mediterranean National Environmental Agencies Network.
- *The Black Sea.* Pollution of the Black Sea is among the worst in the world. The Program for Environmental Management and Protection of the Black Sea, officially launched by the participating countries (Bulgaria, Georgia, Romania, Russia, Turkey, and Ukraine) in June 1993, aims to be a catalyst for reversing the process of environmental degradation and unsustainable resource use in the Black Sea area. It will provide the coastal countries with a solid basis for developing and implementing long-term environmentally sound policies and investment programs. It will also support institution building at the national and regional levels and foster cooperation among countries, the scientific community, NGOs, and the private sector. The Bank has already identified a priority investment portfolio of thirteen projects in municipal services, industrial pollution control, and port reception facilities, and it has carried out an initial survey of biodiversity conservation needs. The Global Environment Facility (GEF), the European Community, the European Bank for Reconstruction and Development, and several bilateral donors have made significant commitments to the program.

- *The Baltic Sea.* The Baltic Sea Environment Program aims to reduce point- and nonpoint-source pollution affecting the Baltic Sea and its catchment area through phased implementation of key activities in investment, institutional strengthening, training, and public awareness during a period of at least twenty years. During fiscal 1993 a program implementation task force, of which the Bank is an active member, was established under the Helsinki Commission, and an implementation program was adopted in March 1993. International support for the program comes from the Commission of the European Communities and from the governments of Denmark, Finland, Germany, Norway, Sweden, and the United States, as well as from the Nordic Project Fund and the World Wide Fund for Nature. The Bank is now considering projects—including investments in wastewater treatment, wetland conservation, and protection of recreational areas—in Estonia, Latvia, Lithuania, and Poland.
- *The Danube River Basin.* The Environmental Program for the Danube River Basin is a multidonor effort to address environmental issues and improve environmental management in the Danube River Basin, which covers substantial parts of Austria, Bulgaria, the Czech Republic, Hungary, Moldavia, Romania, the Slovak Republic, Ukraine, and the former Yugoslavia. Phase I of the program (1992–94) includes the development of a program management framework and a strategic action plan, together with institutional strengthening and human resource development. Phase II will focus on the implementation of investment activities and further efforts to develop institutional and human resources. The Bank is the executing agency for preinvestment activities financed by the GEF and is also providing support under the Special Grants Program. During the past twelve months a coordination unit was established in Brussels, and eighteen preinvestment studies were carried out in tributary river basins, six of which are being supervised by the Bank. The program is also setting up working groups for emergency warning systems and laboratories as well as for monitoring and data management, and is considering several environmentally oriented projects that will support the objectives of the program.

Lending for Environmental Management

Bank lending specifically targeted to the environment can be subdivided into three categories: urban and industrial pollution control, natural resource management, and environmental institution building.⁴ Finan-

cing in all three of these areas increased markedly during the past twelve months, providing a record \$2 billion for twenty-three projects devoted primarily to environmental concerns. Loans or credits were approved by the Bank's Board of Directors for seven projects involving roughly \$1.3 billion for pollution control, ten projects totaling \$521 million for natural resource management, and six projects involving \$173 million for environmental institution building. Of the total, \$830 million supported nine projects in Asia; \$681 million for six projects in Latin America and the Caribbean; \$428 million for five projects in the Middle East and North Africa and Europe and Central Asia; and \$45 million for three projects in Sub-Saharan Africa. An additional thirty projects approved in fiscal 1993 had significant environmental components.⁵ To a growing extent, lending operations—by the Bank and other donors—are guided by the national-level planning process. Box 1-2 illustrates how several NEAPs are being translated into environmental investments.

Urban and Industrial Pollution Control

The most critical environmental problems facing cities in the developing world have been collectively labeled the "brown agenda." Pollution problems may seriously impede the development process because they are linked to both public health and productivity. The Bank's lending in this area can be loosely divided between projects dealing with water pollution, primarily from the industrial and household sectors, and those involving air pollution, for the most part from industrial or transport-related sources. New Bank commitments aimed primarily at urban environmental management and pollution control, and projects approved by the Bank since 1989, are presented in table 1-1.

Urban-based, water-related projects typically aim to reduce current water pollution levels, revive watersheds, improve and maintain future water quality, achieve financial and administrative reforms and autonomy, and create or consolidate local river basin authorities. Project components include water, sewerage, and flood control works; solid-waste collection and disposal facilities; urban rehabilitation; environmental protection; water basin management; cost-recovery mechanisms; and improved legal and regulatory frameworks. Examples of Bank operations approved in the past twelve months are the Water Quality and Pollution Control Projects for the São Paulo and Parana and Minas Gerais metropolitan areas in Brazil, both of which adopt a river basin approach to urban water resource planning and pollution abatement. The Kwangju and Seoul Sewerage Project in the Republic of Korea combines construction of sewage treatment plants with a water conservation component to reduce the generation of wastewater, and the Bursa

Box 1-2. Translating NEAPs into Environmental Investments

Several of the earliest NEAPs are now moving rapidly into the implementation phase. New environmental investment projects have been identified, appraised, and approved by the Bank, the GEF, and other donors in Egypt, Ghana, Seychelles, and Sri Lanka, among other countries.

The NEAP for Seychelles was one of the first to be commissioned. One result has been the development of a Bank-supported project for conserving marine biodiversity and abating pollution, funded in part by the GEF.

Elaboration of Sri Lanka's action plan, which involved a combination of local working groups and Bank sector studies, culminated in a report focusing on land and water management, gem mining, coastal resources, forestry, biodiversity, urban and industrial pollution, energy, and institutional capacity as the main areas of environmental concern. The plan is now being implemented with the support of the donor community and NGOs. Several Bank-financed projects are under preparation, the main one being a program credit to establish the framework for environmental planning. Two other projects to help improve the environment in the greater Colombo area are also being prepared.

Egypt's NEAP was jointly prepared by the government and ten external donors, all of whom endorsed the plan. There was broad-based participation within the country in its formulation, and the plan was presented by the government at a conference attended by donors and NGOs in Cairo last year. Among the topics receiving priority attention were water pollution and natural resource degradation, air pollution, solid waste management, protection of the country's cultural heritage, and the need to strengthen environmental institutions. After its approval, the government introduced a new environmental law incorporating NEAP recommendations, particularly in the area of environmental assessment. Various measures are also now being implemented with donor assistance, including that of the Bank, which has three projects related to the action plan in its lending program.

The national environmental action plan in Ghana was concluded in 1991, and the Ghana Environment Resource Management Project represents the first stage in the implementation of the plan. The primary objective of the project is to strengthen the capacity of both government and people to manage environmental resources in a sustainable manner. A key project component is community involvement in a pilot activity to adopt improved land management practices and implement measures to minimize land degradation. Further, specific attention will be paid to the demarcation and management of fragile coastal wetland ecosystems. Five sites will be recognized under the Ramsar Convention, and a system for their management and future development will be prepared.

Table 1-1. Lending Portfolio for Environmental Management and Pollution Control Approved in Fiscal 1989-93
(millions of dollars)

<i>Country</i>	<i>Project</i>	<i>Loan/credit amount</i>
<i>New commitments, approved in fiscal 1993</i>		
Brazil	Water Quality and Pollution Control— São Paulo/Parana	245.0
	Minas Gerais Water Quality and Pollution Control	145.0
China	Southern Jiangsu Environmental Protection	250.0
India	Renewable Resources Development	190.0
Korea, Rep. of	Kwangju and Seoul Sewerage	110.0
Mexico	Transport Air Quality Management	220.0
Turkey	Bursa Water and Sanitation	129.5
Total		1,289.5
<i>Projects under implementation, approved in fiscal 1989-92</i>		
Angola	Lobito-Benguela Urban Environmental Rehabilitation (92)	46.0
Brazil	National Industrial Pollution Control (92)	50.0
Chile	Second Valparaiso Water Supply and Sewerage (91)	50.0
China	Ship Waste Disposal (92)	15.0
	Beijing Environmental (92)	125.0
	Tianjin Urban Development and Environment (92)	100.0
Côte d'Ivoire	Abidjan Lagoon Environment Protection (90)	21.9
Czech and Slovak Federal Republics	Power and Environmental Improvement (92)	246.0
India	Industrial Pollution Control (91)	155.6
Korea, Republic of	Pusan and Taejon Sewerage (92)	40.0
Poland	Energy Resources Development (90)	250.0
	Heat Supply Restructuring and Conservation (91)	340.0
Total		1,439.5
Portfolio total		2,729.0

Water and Sanitation Project in Turkey features solid-waste management and institutional strengthening measures in addition to basic water and sewerage investments.

Projects to improve urban air quality contain lines of credit or specific pollution control investments, together with measures to strengthen the institutional, regulatory, and management capabilities of environmental protection agencies. Project components include assistance in control-

ling air pollution from vehicles and industrial enterprises, managing toxic and hazardous waste, and storing and transporting hazardous materials. One example is the Southern Jiangsu Environmental Protection Project in China, which, although primarily concerned with water pollution, also addresses industrial air pollution issues. In this particular operation industrial subprojects have been designed both to reduce pollution and to improve operational efficiency by upgrading industrial products and technology and minimizing and reusing wastes.

A second example is the Transport Air Quality Management Project in Mexico. Financed with a \$220 million loan, the Mexico project—the first of its kind financed by the Bank—supports a comprehensive program to reduce air pollution from vehicles in the Mexico City metropolitan area. Improved air quality decreases morbidity and premature death due to respiratory and cardiovascular illness, lessens time lost from work, and improves people's overall well-being and quality of life. The project has five components.

- A vehicles component includes support to develop and enforce emission standards, progressive improvements in emission standards, credit to finance the replacement of older high-use vehicles (for example, taxis, trucks, and minibuses), and a better vehicle registration system.
- A fuel component helps fund the installation of vapor recovery systems at service stations and an alternative fuel pilot program for vehicle conversion.
- A transport policy and management component helps prepare an integrated transport and air quality management strategy.
- A scientific base component helps fund consultant services to strengthen air quality planning through an integrated research plan and equipment for extending the air quality monitoring system.
- An institutional strengthening component assists technical support teams and agencies responsible for controlling air pollution and finances an independent annual environmental audit of public agencies and private organizations.

In addition, the Bank financed its first free-standing project devoted to renewable energy. Details on the India Renewable Resources Development Project are presented in chapter 3.

Natural Resources Management

Bank lending also supports borrower efforts to promote sustainable natural resource management. Four frequently related aspects of this

"green" environmental agenda are stressed: forest management and biodiversity conservation, water resource and watershed management, marine and coastal zone management, and improvement in the ecology of agricultural practices. The past year has seen significant new Bank lending operations in each of these areas, and these new commitments are summarized in table 1-2. The Bank's support for protecting and conserving biodiversity is discussed in the coverage of global environmental issues in chapter 4.

New lending operations involving forest management and protected areas were approved during the past twelve months in several countries, including the **National Parks Management Project** in Venezuela (box 1-3). The **Forestry and Environment Project** in Gabon aims to improve the use of forest resources and reinforce the strategic planning and operational capacity of government institutions in the sector. The project also supports resumption of forestry and environmental research activities, improved forestry and environmental training, and the creation and maintenance of wildlife reserves. The **Second Forestry Development Project** in Tunisia addresses aims to relieve environmental pressures and the growing demand for wood products by promoting sustainable development and management of Tunisian forests with the active participation of forest residents.

Several projects approved since June 1992 deal with water resource issues in rural areas. These operations also illustrate the frequent links among the management of water, land, and forest resources. The **Matruh Resource Management Project** in Egypt is designed to combat desertification in the arid Matruh province by reducing runoff and increasing vegetative cover. It will also promote water conservation and the planting of fruit trees to help reduce erosion while raising the incomes of the local Bedouin population (see box 2-5). The **Uttar Pradesh Sodic Lands Reclamation Project** will help ameliorate salinity problems in several agricultural areas in the Indian state of Uttar Pradesh through soil reclamation. Approximately 80,000 small and marginal farm families would directly benefit from increased productivity and incomes, and for many participating families the project provides a first opportunity to own a small parcel of productive and potentially valuable land. The **Fordwah Eastern Sadiqia Irrigation and Drainage Project** in Pakistan supports the government's effort to control waterlogging and salinity through improved water management. By reducing severe water supply constraints and improving agricultural production through increased efficiency of irrigation canals and watercourses, the project will help to control excessive seepage and provide surface drainage for nearly 18,000 farm families. Finally, the **Eastern Anatolia Watershed Rehabilitation Project** in Turkey involves improved erosion control, reforestation, sus-

Box 1-3. Protecting National Parks in Venezuela

The Venezuela National Parks Management Project, supported by a \$55 million Bank loan, aims to strengthen the management and protection of about twenty national parks and other protected areas covering some 110,000 square kilometers. In addition to conserving numerous endemic plant and animal species, stewardship of the area will also preserve benefits from hydroelectric power, urban water supply, irrigation, coastal fisheries, and tourism provided by the parks. Accordingly, an important project objective is to improve protection of the park to ensure that neither the economic nor ecological benefits are lost through deforestation or other mismanagement.

Both international and domestic NGOs were consulted during the preparation and appraisal of the project and have been encouraged to participate in the implementation stage by reviewing new management plans and helping to organize the use of local volunteers to protect and manage the parks. NGOs will also help to increase the dissemination of environmental education, provide technical assistance and support for the decentralization of the parks administration, and periodically review the progress of the project and consider options for increased participation.

tainable dryland farming, and pasture management programs in the upper Euphrates watershed, as well as increased production of fruit, honey, wheat, and fodder—adding to incomes in seriously impoverished regions.

Two projects approved in fiscal 1993 contain important components for coastal zone management, marine biodiversity conservation, or marine pollution control. Both projects combine investments in physical infrastructure with significant environmental management actions. The **Private Sector Tourism, Infrastructure, and Environmental Management Project in Egypt** will improve the policy environment in the tourism sector and support infrastructure investments for two privately sponsored integrated area development projects on the Red Sea coast as well as finance the construction of additional berthing facilities for Nile River cruises and improve traffic and navigation along the river. It also provides technical assistance and training for local environmental staff along with a subproject cofinanced by the GEF for the development and first-stage implementation of a coastal zone environmental management plan. The **Environment and Transport Project in the Seychelles** will help the government implement the NEAP (see box 1-2, above) and support environmental programs in management of resources, conservation of marine biodiversity, and control of marine pollution. Among the

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project's objectives are facilitating tourist access while preserving or restoring environmentally sensitive areas.

Finally, the **Integrated Pest Management Training Project** in Indonesia is designed to improve the ecological performance of existing agricultural practices. Its objective is to strengthen integrated pest management (IPM) techniques so as to stabilize agricultural production in environmentally sound and sustainable crop systems. Reduced pesticide use through adoption of IPM is expected to alleviate pollution problems in Indonesia's densely populated village communities, especially in areas where drinking and bathing water are in limited supply. It would also permit fish to be raised in paddy fields. Reduced pesticide consumption could result in foreign exchange savings of about \$17 million over the life of the project.

Environmental Institution Building

Without sufficiently strong institutions to implement them, however, even the best laid policies and plans are unlikely to succeed. Thus countries frequently require financial assistance to build the institutions necessary to put in place, monitor, and enforce measures for sustainable development. While many of the "brown" and "green" projects listed above contain significant institution-building components, lending in the past twelve months also included several operations devoted primarily to strengthening environmental institutions at the national level. Table 1-3 lists commitments for environmental institution-building projects approved by the Bank since 1989. Details of the **Environment Resource Management Project** in Ghana were presented in box 1-2. Other new projects that focus on institutional strengthening for environmental management are briefly described below.

The **Environmental Technical Assistance Project** in Bolivia aims to strengthen key national agencies that have environmental responsibilities, improve the country's environmental legal and regulatory framework, and promote environmental education. The **Environmental Institutions Development Project** in Chile supports efforts to establish the institutional framework to manage environmental protection and the conservation of natural resources. Similarly, the **Pakistan Northern Resource Management Project** is designed to provide the basis for the sustainable and economically efficient use of land resources in one of the country's poorest and most environmentally fragile areas. The project aims to help improve the policy framework for the use of land resources and to restructure and strengthen the institutions for land management and conservation. In China the **Environment Technical Assistance Project** will help strengthen selected projects and programs of the National Environmental Protection Agency and the Chinese Academy of Sciences.

Table 1-3. Lending Portfolio for Environmental Institution Building Approved in Fiscal 1989-93
(millions of dollars)

<i>Country</i>	<i>Project</i>	<i>Loan/credit amount</i>
<i>New commitments, approved in fiscal 1993</i>		
Bolivia	Environmental Technical Assistance	4.8
Chile	Environmental Institutions Development	11.5
China	Environment Technical Assistance	50.0
Ghana	Environmental Resource Management	18.1
Korea, Rep. of	Environmental Research and Education	60.0
Pakistan	Northern Resource Management	28.8
Total		173.2
<i>Projects under implementation, approved in fiscal 1989-92</i>		
Brazil	National Environment (90)	117.0
Indonesia	BAPEDAL Development Technical Assistance (92)	12.0
Madagascar	Environment I (90)	26.0
Mauritius	Environmental Monitoring and Development (91)	12.0
Mexico	Environment (92)	50.0
Nigeria	Environmental Management (92)	25.0
Pakistan	Environmental Protection and Resource Conservation (92)	29.2
Poland	Environment Management (90)	18.0
Total		289.2
Portfolio total		462.4

It will also improve interagency and interministerial coordination in setting environmental priorities, better integrate environmental objectives into national social and economic development policies and programs, and, as is further discussed in the next chapter, strengthen China's environmental impact assessment system.

Another fiscal 1993 project, the Environmental Research and Education Project in Korea, will help develop educational resources and strengthen the research capacity of colleges to better train environmental professionals and develop more effective methods to measure and control pollution, manage forest and fishery resources, and operate regulatory systems.

Lessons from Project Implementation

Although its support has sharply increased in recent years, the Bank has been lending to improve environmental management for several decades. Lessons from these efforts to help borrowers improve environ-

mental management can be drawn both from ongoing and from completed operations. Implementation of projects in the active portfolio is monitored through the Bank's supervision process and summarized in the "Annual Report on Portfolio Performance" (ARPP). The Operations Evaluation Department (OED) assesses the results of completed projects. Some of the lessons emerging from the Bank's growing experience with environmental management are highlighted below.

PERFORMANCE OF THE ACTIVE PORTFOLIO. There are now more than 100 active Bank projects—or some 5 percent of the Bank's total active portfolio—which are directed toward strengthening environmental policies, institutions, and investments. These "environment" or "forestry" projects represent some \$5 billion in Bank commitments (of which the Bank has disbursed \$2.2 billion) and nearly \$13 billion in total investments. Another 11 percent (206 operations) of active Bank projects have "natural resource management" as their primary objective and account for 7 percent (\$9.7 billion) of total Bank commitments.

The 1993 ARPP found that the average performance rating of projects having "environment" or "forestry" as their main objectives was virtually the same as that for the active portfolio as a whole, as was the share of "problem projects" (18 percent). Ongoing projects were reported to have performed better in "environmental aspects," on average, than in other aspects, such as overall administration, financial objectives, and compliance with legal covenants. Even though regional differences were not significant, projects in East Asia and the Pacific, Europe and Central Asia, and the Middle East and North Africa appear to be performing somewhat better in regard to the environment than those in South Asia, Sub-Saharan Africa, and Latin America and the Caribbean. Ratings of environmental performance, however, which are not mandatory, require further analysis before firm conclusions can be drawn.

Several management issues related to the environment were identified by the ARPP. These included both weak technical and managerial capacity of agencies responsible for preparing environmental assessments and designing associated project components and the institutional and technical deficiencies in the entities responsible for implementing environmental projects and components. Other problems included inadequate attention to environmental issues during project supervision, poor performance indicators (which made it difficult to monitor and evaluate environmental performance and thus to detect implementation problems in environmental projects and components as quickly as desirable), and an insufficient number of qualified Bank staff to deal with environmental issues.

Similar findings were reported in a review carried out by the Bank's Vice Presidency for Latin America and the Caribbean. Of the fifty-five projects with environmental components presently being implemented in that region, supervision reports indicated that roughly 30 percent had good environmental performance ratings, 20 percent had average ratings, and 7 percent had poor ratings, while the remaining 43 percent were unrated. The review also found, however, that reports on environmental concerns by Bank supervision missions still lack consistency and methodological definition, confirming the need for better environmental performance indicators.

Experience with individual environmental operations and components provides further evidence of the importance of institutional and financial factors in project performance. Institutional weaknesses—including insufficient coordination among participating agencies—and shortages of local counterpart funding are two of the main difficulties encountered. Implementation problems have also occurred because of inadequate pricing policies, and many environmental sanitation projects have been characterized by poor cost recovery. Environment and forestry projects, particularly in Africa, have experienced slow disbursements and delays in execution and have thus far been unable to promote environmental conservation to the extent desired. Among the contributing factors: projects have rarely addressed degradation occurring outside their immediate boundaries, insufficient attention has been given to policy distortions and incentives leading to environmental degradation, overall government expenditure patterns have not always been environmentally sound, and agencies dealing with the environment have frequently had inadequate management.

Several country-level and regional analyses are yielding lessons about the factors required for successful implementation. For example, an assessment of natural resource management projects in the Sahel identified security of land tenure, full participation of local communities (which also requires local implementation capacity), and effective monitoring and evaluation as the most important contributing factors. An analysis of two ongoing forestry projects in Indonesia revealed the need for further institutional strengthening and incentive reforms if conservation efforts were to be successful. More generally, Bank experience with natural resource management points to the importance of project assessment and consultation with beneficiaries early in the project cycle, particularly when full environmental assessments are required.

LESSONS FROM COMPLETED PROJECTS. In fiscal 1993 the OED continued to address environmental issues in its review of project completion reports

and its own performance audit work. The OED's "Annual Review of Evaluation Results for 1991," published in March 1993, focused on evolving Bank experience with environmental management. Among the findings were the need to improve the monitoring of project environmental impacts and the supervision of projects' environmental components; the existence of positive links between environmental performance and economic, financial, and institutional performance of projects; the importance of strengthening the institutional capacity of borrowers for environmental management; and the need to give greater attention to the macroeconomic policy framework, which strongly conditions natural resource use.

Relevant lessons can also be drawn from a recently completed OED evaluation of natural resource management in Bolivia. This is one of a series of studies on the Bank's (and other donors') effectiveness in addressing issues of natural resource management in selected countries. The Bolivia study found that a country's ability to achieve sustainable development goals will depend on how well natural resource management concerns are integrated into all levels of decisionmaking; the donor community has frequently overestimated the degree of readiness of national institutions to implement programs that affect natural resources; completed Bank financial operations have involved extensive resource use, but past decisions about natural resource management have been made without sufficient information; and, for future natural resource-based programs to succeed, appropriate policy, institutional, and other reforms affecting resource management must be designed and implemented.

To continue learning from ongoing and past Bank experience, the OED has initiated several other reviews and evaluations in recent months. These include consideration of the environmental impact of Bank work on urban development since the 1970s; review of forty years of Bank experience with irrigation projects; focus on the attention provided environmental issues in the appraisal, supervision, analysis, and implementation of country adjustment programs; and review and evaluation of the Bank's role and activities in the pilot phase of the GEF. The OED also is providing the secretariat for the overall evaluation of the GEF by each of the participating agencies (see chapter 4).

Expanding and Disseminating Knowledge

National-level planning and Bank investment operations are complemented by an extensive program of policy guidance, research, and technical assistance. Important new policy initiatives for forestry, agri-

culture, water resources, pest management, and energy efficiency and conservation were completed during the past twelve months, while others will be completed in fiscal 1994. Achieving environmentally sustainable development also requires the Bank and its borrowers to bridge a severe "knowledge gap." This involves identifying lessons from success and failure in environmental policymaking, and dissemination of best practices. It also requires detailed analytical work on concepts, methodologies, and indicators.

Policy Guidance

During the past twelve months the Bank has completed important policy and sector review papers to help guide staff in integrating environmental concerns into their operational work. These efforts address water resources and agricultural management, including agricultural pest management and forestry.

WATER RESOURCES MANAGEMENT. During fiscal 1993 the Bank's Board of Directors endorsed an important policy paper on water resources management, which addresses the issues of water conservation and water quality and builds on lessons of Bank experience. The paper advocates a comprehensive, cross-sectoral approach to designing water resource investments, policies, and institutions that would eliminate the fragmentation characteristic of earlier subsectoral initiatives. The policy recommendations are consistent with broad international consensus expressed at the Earth Summit. A concerted effort has already been made to translate this new policy into effective planning initiatives at the regional level (box 1-4). Key elements of this policy include the following Bank efforts.

- Encourage and help countries to develop a comprehensive analytical framework for water resource management that is suitable to their needs, resources, and capacities and that includes protection and restoration of water-dependent ecosystems.
- Help governments establish legal and regulatory frameworks for dealing with pricing, monopoly organizations, environmental protection, and other aspects of water management.
- Support, where capacity exists, central government efforts to decentralize responsibilities to local governments and transfer service delivery functions to the private sector, to financially autonomous public corporations, and to community organizations such as water users' associations. A key component of the reforms

Box 1-4. Regional Water Resources Management

Water is already scarce in the Middle East and North Africa region. Only seven countries in the region have per capita availability of more than 1,000 cubic meters a year. Competition for water among irrigated agriculture and urban and industrial uses is growing. Most major water resources, including the Jordan, Nile, Euphrates, and Tigris Rivers, are shared between two or more countries. Deteriorating water quality is also a serious problem. Water strategies for the region must thus be defined at national and international levels. The Bank's proposed water resources management strategy for the Middle East and North Africa aims to help governments and Bank staff address water resource issues in an integrated and sustainable manner, taking into account the complexity and urgency of these concerns. The strategy recommends that the process begin with the preparation of individual country water assessments to take stock of water problems and issues, followed by the definition of long-term strategies for developing and managing water resources.

The Bank will help countries to explore the feasibility of developing markets for water rights to improve the efficiency of water use by encouraging investments in conservation and more rational use of the resource. The privatization of water rights and water conservation measures will further help to reduce water contamination and waterlogging problems.

Also at the regional level, a recent study evaluates features common to South and East Asia and assesses problems related to water resources on a country-by-country basis. Consistent with the orientation of the new water policy paper, this review emphasizes the multisectoral nature of comprehensive management strategies for water resources. The study also discusses the best practices in Asian countries. Follow-up actions are expected to include country-specific strategies for developing and managing water resources to help define the Bank's lending program.

to be supported by the Bank is greater reliance on incentives for efficiency and financial accountability for providing the delivery of water services.

- Increase its support of government efforts to improve and expand sanitation and wastewater collection and treatment, promote the use of efficiency pricing and the imposition of pollution charges to encourage water conservation and reduce pollution, and help governments develop strategies and cost-effective mechanisms for ecologically sustainable management, protection, and restoration of recharge areas and water-dependent ecosystems such as wetlands, riverine floodplain areas, estuaries, and coastal zones.

- Give increased attention to the linkages between ground and surface water in the management of river basins and support the establishment of government programs and policies, including land-use policies, to restore and protect groundwater quality and preserve groundwater recharge areas.

FORESTRY. A formal policy statement ("Operational Policy 4.36, Forestry") was issued in March 1993 to guide Bank staff involved in forestry projects. Affirming that the Bank aims to curb deforestation, enhance the environmental contribution of forested areas, promote afforestation, reduce poverty, and encourage economic development, the policy includes guidelines for the sector. Specifically the Bank will:

- Not finance commercial logging operations or the acquisition of logging equipment for use in primary tropical moist forests
- Adopt a sectorwide approach to forest and conservation work to address policy and institutional issues and to integrate forestry and forest conservation projects with initiatives in other sectors and macroeconomic goals
- Involve the private sector and local people in forestry and conservation management and in alternative income-generating activities as well as require borrowers to identify and consult the interest groups involved in a particular forest
- Make lending operations in the forest sector conditional upon government commitment to undertake sustainable management and conservation-oriented forestry
- In forests of high ecological value, finance only preservation and light, nonextractive use of forest resources.

AGRICULTURAL MANAGEMENT. In the past year the Bank's Board of Directors also endorsed an agriculture sector review paper that highlights the links between agriculture, natural resource management, and environmental quality. The paper also identifies key measures, from the standpoint of natural resource management, that the Bank should pursue to assist countries in the transition from publicly to privately managed agriculture. These include:

- Phasing out subsidies that distort the desirable and efficient employment of inputs and introducing realistic levels of user fees for most publicly owned natural resources and related services
- Involving local communities in the design and implementation of public expenditures in rural areas

- Promoting the sustainable management of natural resources through policy and property rights reforms, adopting new technologies and strengthening public and rural community institutions that manage common-property resources
- Ensuring that natural resource management is brought fully into the policy reform agenda and framing policies that promote improved farming practices to increase incomes and preserve the environment.

PEST MANAGEMENT. In July 1992 the Bank issued "Operational Directive 4.03, Agricultural Pest Management" and in April 1993 introduced accompanying guidelines and best-practice policy. The new directive states that the Bank will promote safe, effective, and environmentally sound pest management practices and indicates that this objective is best achieved through an integrated approach that involves three basic principles: keeping pests below economically damaging levels rather than eradicating them; relying wherever possible on nonchemical means to control pest populations; and applying pesticides where necessary in a way that minimizes adverse effects on other plants, animals, people, and the environment. It further affirms that sector operations should emphasize strengthening overall country capacity to address pest and pesticide problems.

Technical Assistance, Research, and Dissemination of Best Practices

In addition to the formal policy documents discussed above, the Bank has continued to expand and deepen its analytical and technical assistance work on the environment. Selected activities are discussed below under three categories: pollution and the urban environment, natural resources and the rural environment, and national legal and institutional assistance. Concepts, methodology, and indicators for environmentally sustainable development are discussed in the next section.

POLLUTION AND THE URBAN ENVIRONMENT. The pace of urbanization and industrialization has resulted in growing environmental challenges for the cities of the developing world. In combination with multilateral and bilateral agencies, the Bank provides technical assistance to improve environmental management in urban areas and has undertaken sector studies and research to support the development of urban management policies and strategies.

Technical Assistance. During the past fiscal year the environment component of the Urban Management Program (UMP) continued to develop

and promote appropriate policies, strategies, tools, best-practice case studies, and related research to strengthen environmental management at the city level and respond to the problems of the "brown" agenda. Numerous technical papers were prepared, covering such topics as urban applications of satellite remote sensing, rapid urban environmental assessment, alternative instruments for pollution control and waste management in urban areas, and land use considerations in urban environmental management. A group of experts on local management of wastes from small and cottage industries also met in León, Mexico, in October 1992. Further the UMP's environmental team at the Bank has been supervising research in several critical areas, including the economic valuation of urban environmental problems, environmental effects on health, and the collection of urban environmental data at the household level. The UMP is now developing a framework paper for urban environmental planning and management in developing countries entitled "Toward Environmental Strategies for Cities."

The Metropolitan Environmental Improvement Program (MEIP) began in 1989 to help large Asian cities tackle their rapidly growing environmental problems. It is funded by the UNDP and implemented by the Bank. Five national governments have endorsed the program, and Phase I involved five cities: Beijing, Bombay, Colombo, Jakarta, and Metro Manila. Phase II, which began in early 1993, will concentrate on implementation and follow-up of activities in these cities, expand the MEIP approach to other cities in those countries, and extend the program to the Kathmandu valley in Nepal. Lessons from Phase I include the importance of an organizational framework for building a comprehensive local program. Both rapid investment and long-term environmental management strategies are also necessary for the program to be effective. In addition, local initiatives and broad participation and consensus building around local strategies are crucial. Examples of recent environmental investments supported by the MEIP include:

- Colombo's Beira Lake Restoration Project, designed to clean up an important urban water body while developing multiple uses of the surrounding land. The project requires coordinated action by government agencies, cottage industries, large hotels, religious institutions, recreation centers, and community groups in the affected areas around the lake.
- Industrial pollution abatement projects in Bombay, Colombo, and Jakarta that focus on cost-effective wastewater treatment in industrial estates.
- Projects in Manila and Colombo that develop new credit arrangements to finance pollution abatement. These projects include pos-

itive and negative incentives, advisory services to industry, and measures to improve the financing and management of pollution control agencies.

The Bank supports two other important urban environmental initiatives in Asia: the formulation of an urban air quality management strategy and action plan (URBAIR) and a project to assess the extent and seriousness of acid rain (RAINS-ASIA) in the region. The URBAIR program, which is a Phase II component of the MEIP, will lead to a detailed policy and economic incentives strategy to improve air quality in four major cities: Bombay, Jakarta, Kathmandu, and Manila. The RAINS-ASIA project, based on the regional acidification information and simulation model to assess the impact of acid rain in Europe (RAINS-EUROPE), will provide an integrated assessment of policies and strategies for reducing acid rain. Although the initial focus of the model is on acidification, related issues—including emissions of greenhouse gases and other pollutants—will subsequently be incorporated into a comprehensive strategy to help guide GEF activity in the region.

In addition, the recently established Water and Sanitation Utilities Partnership, also co-funded by the UNDP, is designed to disseminate best practice in water and sewerage utility management among sector professionals to improve access of poor city dwellers to clean water and sanitation. A seminar held in Washington, D.C., in December 1992 enabled participants from a cross section of countries to share and exchange their experiences in providing privatized water and sanitation services. In February 1993 a conference on water and wastewater management, held in Riga to support the Baltic Sea Environment Program, provided a forum for about seventy sector specialists from Estonia, Latvia, Lithuania, Poland, Russia, and the Nordic countries. They produced the "Riga Statement," which recommended support from national governments and external agencies to improve economic efficiency; to increase investments in water supply and treatment; and to strengthen partnerships among governments, water utilities, donor agencies, and the private sector.

Other assistance for the control of urban and industrial pollution included the development of tools for urban environmental management. In fiscal 1993 work continued on decision support system software for industrial pollution control. The system can be used to organize information, formulate policy options to curb industrial pollution, and assess the environmental and economic effects of alternative pollution control interventions. Designed to help policymakers lower overall concentrations of pollution at least cost to industry and individual firms without impairing economic development or threatening the health of

exposed populations, the system ranks industrial sources of pollution and the relative toxicity of emissions. The first stage of the project was finished in early 1993, and the software is being tested in Algeria as part of the formulation of the country environmental strategy. At least four other developing countries have expressed interest in the software system.

Sector Studies and Research. Several Bank country departments are undertaking sector studies on urban environmental management. One such exercise in China is a follow-up to the countrywide environmental strategy work completed in fiscal 1992. A similar review began in Senegal as part of an effort to develop a strategic framework to address national urban environmental problems. A rapid urban environmental assessment is likewise under way in Senegal in conjunction with the environmental component of the UMP. Both activities will help to define a future Bank lending operation focusing on urban environmental issues in that country.

In the past twelve months the Bank also completed a study on environmental management and urban vulnerability in Rio de Janeiro. This is one of three case studies undertaken as part of a research project on disaster prevention and mitigation in metropolitan areas in developing countries by the World Bank, UNCHS-Habitat (United Nations Center for Human Settlements), and the UNDP. Findings of the Brazil case were published in a World Bank Discussion Paper entitled *Towards a Sustainable Urban Environment: The Rio de Janeiro Study*. Similarly, a regional conference on urban environmental management was held in Quito, Ecuador, in June 1993. The objectives of this meeting were to exchange information on common problems and alternative approaches to managing the urban environment in various Latin American countries and to identify future paths and solutions, including areas that should receive priority in Bank assistance to the region in coming years.

Several recent Bank studies deal with pollution from industrial or transport sources. Among the main studies in this field that were completed or initiated by the Bank since June 1992 are:

- An analysis of trade policy and industrial pollution in Latin America, which concludes that fast-growing open economies have experienced more rapid growth of clean technologies and that "pollution havens" are more likely in protectionist economies
- An examination of Indonesia's industrial development program, which finds that liberalization in the 1980s has promoted a surge in relatively clean assembly processes, reversing the pattern of more rapid growth in "dirty" materials-processing sectors in the 1970s

markets can be relied on to bring about adjustment and sustainable growth within a politically sensible timeframe without incurring extensive social costs—and, if not, what supporting mechanisms are needed to offset market failure (Taylor 1988). Other areas of research have attempted to bring together neo-classical and nonneoclassical viewpoints on the specific issue of the economic transformation of centrally planned economies (see Blanchard and others 1991; Kornai 1990; and Hansson 1992).

I have tried to do no more than outline WIDER's current work on the kind of reoriented research agenda that Krugman has suggested. I would hope that, as a follow-up, interested research institutions could pursue some form of pooling and coordination of effort in the most promising research areas.

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ments, including their low enforcement costs, high flexibility, and overall efficiency.

Substantial progress has been made in revising the Bank's industrial pollution control guidelines, which were originally issued in 1984 and 1988. Updating these guidelines is necessary to reflect cleaner production technologies and recent approaches to environmental management, which emphasize pollution prevention and waste reduction rather than waste treatment and disposal. Eleven guidelines have been developed jointly with the United Nations Industrial Development Organization. Twenty others are being revised with the assistance of Canadian, Dutch, and Norwegian consultants and the United Nations Environment Programme (UNEP). Bank consultant trust fund support is being secured for preparation of the remaining fifty guidelines.

NATURAL RESOURCES AND THE RURAL ENVIRONMENT. The Bank continues to promote significant research on the use and management of natural resources. Research carried out in cooperation with the Land and Agriculture Policy Center in Johannesburg, for example, focuses on resource management under a new South African political structure. It is expected to identify policy options that would both increase the access of previously marginalized communities to natural resources and redress the current inequitable, inefficient, and unsustainable use of these resources. More generally, the Bank continues to support the Consultative Group on International Agricultural Research (CGIAR), which is discussed further in chapter 3. The CGIAR undertakes valuable agricultural research and provides a means to disseminate information on environmentally sustainable agricultural technologies.

Several forest management strategies were prepared in the past year, at both the regional and country levels. A paper entitled "Strategy for Forest Sector Development in Asia" surveys the evolution of forestry in the region, examines forest policy and resource management issues, discusses the evolution of Bank lending programs and practices, and presents strategic recommendations. Within Asia, analysis on the forestry sector in Indonesia was incorporated into the CEM. This analysis focused mainly on sustainable management of the country's large natural production forest resources but also dealt with the plantation sector and forest industries. Elsewhere in the region the Bank has helped Papua New Guinea to implement its National Forest and Conservation Plan and carried out a sector study on Malaysia's forest resources.

Forest sector studies and action plans are likewise under development for various parts of Africa and Latin America. A forest action plan for Ethiopia, for example, envisages extensive policy and institutional reforms to transform the role of the public sector from heavy direct

involvement to greater support for private sector—including local community—participation. Forest sector studies were also under way in several Latin American countries and for Central America as a region. They aim to formulate forestry policies focusing on land use, concessions, taxation, and royalties (in Argentina and Bolivia); assess the economic and biological benefits of different management options (in Chile); review the constraints to sustainable development of the natural resource and forestry sectors (in Brazil and Mexico); and determine the source of inconsistencies between government forestry plans and private sector behavior (in Costa Rica).

Another regional study is under way in Latin America to document the sources of policy failures and successes in managing natural resources. The study addresses such issues as the impact of trade policies on natural resources, appropriate policy instruments to promote the conservation of resources, and the roles of different levels of government in the management of resources.

In addition to the activities described above, the Bank's efforts to review and revise its activity in the forestry sector during the past year included publication of a book entitled *Managing the World's Forests*. This volume presents the views of authors from the social, physical, and biological sciences. These diverse perspectives contribute to the dialogue on the two main challenges facing the sector: how to arrest destructive deforestation and manage existing forests sustainably and how to increase forest resources through reforestation and afforestation.

Many of the "green" issues facing Latin America stem from the uncontrolled development of the frontier. A study nearing completion reevaluates the incentives that drive frontier development dynamics to determine why governments cannot or will not exercise effective control. Policy failures notwithstanding, the study concludes that public and private actors typically face overwhelming incentives to develop the frontier along "unsustainable" lines. It also finds, however, that much agricultural development that was previously believed to be unsustainable is in fact both agronomically sound and financially attractive. The study concludes that accounting for global externalities may tip the balance back toward conservation of some frontier areas, since the implied value of carbon sequestered in frontier forests at even modest shadow prices is several times greater than the most profitable development use to which this land can be put.

Work in the past twelve months also focused on drylands management policies and information needs. Drylands management in Africa's Sudano-Sahelian zone was the focus of a Bank-sponsored workshop in Oslo, Norway, in August-September 1992. Environmentally relevant sector work on agriculture and land management in semiarid areas has

also been completed for several Sub-Saharan countries, such as agricultural strategy papers for Comoros and Madagascar and an irrigation strategy for Madagascar.

The Bank is preparing technical guidelines for integrated coastal zone management (ICZM). Recognizing the economic importance, as well as the ecological complexity and sensitivity, of coastal areas in developing countries, ICZM provides a way to ensure that the potentially large economic and social benefits associated with coastal zone development are not undermined by destructive practices and the inappropriate use of land and water resources. This was emphasized at the Earth Summit and forms part of Agenda 21. The guidelines, which are expected to be completed by the end of 1993, will describe the process of ICZM, show why it is needed to realize the benefits from the coastal zone on a sustainable basis, and indicate what developing countries can expect if they undertake the process. The guidelines will delineate the ICZM approach in detail, emphasizing its intersectoral focus.

In addition several coastal zone management studies were carried out in the past year. One such exercise involving the Caribbean region identified four main problem areas: pollution, alteration or destruction of natural coastal ecosystems, beach erosion and beach sand mining, and natural disasters. A twofold approach is proposed to deal with these problems: establish effective coastal zone management agencies and integrate economic and environmental planning to minimize negative environmental impacts from coastal development. An underlying theme is that economically important activities such as tourism and fisheries necessarily depend on unpolluted coastal waters. Also relevant to ICZM is a recent Bank discussion paper on the usefulness of marine biotechnology for developing countries. Based on the premise that many countries may be destroying their coastal marine ecosystems because they greatly undervalue the potential benefits of undamaged coastal waters, the report illustrates a range of ways to use marine resources more sustainably.

NATIONAL LEGAL AND INSTITUTIONAL ASSISTANCE. Legal reform, regulatory instruments, and the capacity for enforcement are essential for the effectiveness of a country's environmental institutions. Since June 1992 the Bank's Legal Department has provided technical assistance—through its Environmental Affairs Unit and expert consultants—for environmental legislation and regulation in more than thirty developing countries and economies in transition. For example, assistance was provided in drafting comprehensive new environmental codes in Gabon, Honduras, and Moldova; new forestry laws in Bhutan, Bolivia, Cameroon, Laos, and Senegal; water laws in the Dominican Republic

and Uganda; environmental provisions for mining legislation in Belize and Mongolia; and regulations for industrial pollution control and waste management in China. In cooperation with national and international institutions, the Bank also supported specialized training programs in environmental law and administration for lawyers from developing countries at the International Law Institute in Washington, D.C.; in Apia, Western Samoa, for the South Pacific Regional Environment Program; and in Rome at the International Development Law Institute.

As illustrated above, Bank support for technical assistance for environmental institution building is growing. Until this past fiscal year, however, it was difficult for the Bank to offer small grants for such work. To address this need, the Bank established a special technical assistance fund, the Institutional Development Fund, on a pilot basis, to provide grants from \$50,000 to \$500,000 to low-income countries for work that could be completed in two years or less. The fund was designed to fill gaps in the Bank's set of instruments for financing technical assistance, including assistance for the preparation of NEAPs. In fiscal 1993 fifty-seven requests for grants had been approved for \$16.3 million, including \$2.7 million for ten grants for environment and natural resources management.

Concepts, Methodologies, and Indicators

To support the growing volume of its country strategy work, technical assistance, and environmental investments, the Bank is expanding its analytical work on the conceptual underpinnings of environmentally sustainable development, environmental valuation and accounting, and environmental data and indicators. A "thematic team" has been established to lead this work (see chapter 5). Brief illustrations of recent Bank work in each of these areas are given below.

KEY CONCEPTS OF ENVIRONMENTAL SUSTAINABILITY. The conceptual basis of environmentally sustainable development has been an active area of debate since publication of *World Conservation Strategy*, by the World Conservation Union in 1980, first gave wide circulation to the term "sustainable development." The *World Development Report 1992: Development and the Environment*, in turn, refined the definition to focus on "development that is environmentally sustainable." The Bank's current work in this area is designed not to generate a general theory of sustainability but rather to focus on key conceptual issues with potentially important operational and policy implications. In explicitly recognizing that the basic concepts underlying environmental sustainability are still only partially understood, the Bank accepts that its environmen-

tal work program is evolving. Examples of recent activity include the following.

- A recent study, "Sustainable Development Concepts: An Economic Analysis," aims to build the concept of sustainability into a comprehensive analytical framework that can be used to identify environmentally sustainable economic policies. The study analyzes concepts of sustainable growth, sustainable development, and sustainable resource use in terms of conventional neoclassical economic theory. It further examines whether free markets achieve sustainability and how policy intervention may help or hinder sustainability.
- Ongoing research is addressing the Bank's treatment of depletion premiums in the appraisal of projects and the issue of incorporating a sustainability constraint to ensure that the value of natural capital is fully accounted for in Bank-financed operations. A careful sampling and review of Bank projects is under way to discover the extent to which user costs are calculated in projects that deplete nonrenewable resources or the regenerative and assimilative capacity of renewable resources.
- Discount rates have also been the subject of several studies. Alternative discounting methodologies are reviewed and assessed in the March 1993 issue of *Finance and Development*.
- In a joint endeavor, the Environment Department and the International Economics Department are beginning to explore the links between alternative long-term growth of the world economy and the environment and the implications for commodity markets and world trade of incorporating environmental costs in prices.

ENVIRONMENTAL VALUATION AND ACCOUNTING. An increasing focus of the Bank's analytical work, valuation provides a systematic way to incorporate environmental externalities into development decisionmaking at every level. Three priorities for the Bank are to apply the technique more widely at project, sectoral, and national levels; to further refine the methodology; and to incorporate a broader range of biological, ecological, and sociological expertise into its methods and results. Examples of current work include:

- *National accounting for the environment.* In collaboration with the Statistical Division of the United Nations, the Bank has concluded a four-year research program on environmental accounting and published the work as *Towards Improved Accounting for the Environment*. Results include the development of a framework for inte-

grated environmental and economic accounting, as well as case studies of Mexico and Papua New Guinea. Related studies cover many issues: economic depreciation of mining stocks; valuation and treatment of depletable resources in national accounts; service-level approaches to measuring asset performance; asset aggregation and intergenerational asset transfer; and forestry economics, deforestation, and national accounting. As follow-up to this work, a user-friendly guide for country economists and government officials is being prepared.

- *Methodologies of valuation.* After two years of research and an inter-agency workshop on environmental economics and valuation, lessons on valuation have been developed into a full internal training program. To date, some 350 Bank economists have been trained in this area. In addition, development of a "Handbook on Environmental Valuation" for use by Bank staff and analysts in borrowing countries has been initiated. Separate chapters will detail best practices in many areas: health effects, productivity effects, "amenity" and "intrinsic" values for a variety of forms of environmental degradation; cost-effectiveness versus cost-benefit analysis; discount rates; depletion premiums; and national accounting for the environment.
- *Noneconomic values.* Work undertaken by the Bank's new Social Policy and Resettlement Division (discussed in chapter 2) addresses questions of "existence value." A recent Bank Technical Paper, *Indigenous Views of Land and the Environment*, demonstrates how existing concepts of economic valuation—which focus on the health, productivity, and aesthetic "amenity" values of the environment—fail to address more fundamental concerns of culture and "way-of-life," which may be of paramount importance to certain populations. The Bank's evolving work program on social assessment is intended in part to provide a systematic way to address such issues.
- *Collaboration with other agencies.* The Bank continues to sponsor and support analytical work on environmental economics through participation in the Committee of International Development Institutions for Environment. Under this international umbrella organization, the Bank conducted a workshop on the environmental impact of economywide policies as follow-up to a previous workshop on environmental and natural resource accounting. A series of papers presented in 1993 offers methodological guidance to project task managers and points to priority areas for future work. (See chapter 3 for details on the economywide policies study and chapter 6 for members of the committee.)

ENVIRONMENTAL DATA AND INDICATORS. Environmental data and indicators of sustainability on which to base policy and operational decisions are an important element of sound environmental and natural resource management. Yet among many Bank borrowers, basic information on the state of the environment is often incomplete or site-specific, making it difficult to extrapolate data to the country as a whole. Many Bank initiatives are designed to alleviate these deficiencies.

- A Bank report entitled "Natural Resource and Environmental Information for Decisionmaking" demonstrates various ways in which environmental and natural resource information can be used for project design, management, monitoring, and evaluation, with particular focus on the use of geographic information systems in investment projects.
- A multi-donor Program Secretariat on Environmental Information Systems continues to support the development of such systems in Africa. Established in 1990, this program helps African countries assess priorities for environmental and land information systems; analyze the technical, institutional, legal, and economic obstacles to meeting these needs; and identify the means to overcome them. Among the countries sharing information are Benin, Botswana, Burkina Faso, Côte d'Ivoire, Ghana, Kenya, Lesotho, Madagascar, Mali, Mauritania, Nigeria, Senegal, Uganda, Zambia, and Zimbabwe.
- Environmental sustainability indicators are being developed for several different areas. The UMP has established indicators for rapid urban environmental assessment covering socioeconomic status, housing conditions, health, transport, noise, and wastes. Other initiatives include the Industrial Pollution Projection system, which combines data on pollution intensity and emissions toxicity, and the development of agricultural sustainability indicators by monitoring on-farm factor productivity in the Indo-Gangetic plain. These initiatives have been discussed above in greater detail.
- Work began on integrating into Bank statistical routines the special data effort made for the *World Development Report 1992: Development and the Environment*. The *World Bank Atlas* was redesigned to show the environment, people, and the economy as its three main topics, and *Social Indicators of Development* was modified to bring out environmental concerns as well as priority poverty indicators.
- Three new expert staff have been recruited to the Environment Department to lead the Bank's work on environmental indicators and accounting.

Notes

1. The "World Bank" as used in this report, refers to the International Bank for Reconstruction and Development (IBRD) and its affiliate, the International Development Association (IDA). The IBRD has two other affiliates, the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA). The Bank, the IFC, and MIGA are sometimes referred to as the "World Bank Group."

2. All dollar amounts are current U.S. dollars except where noted. A billion is 1,000 million.

3. The International Development Association (IDA) provides interest-free loans to the Bank's poorer member countries.

4. An important part of the Bank's efforts to reduce urban and industrial pollution is the promotion of energy efficiency and conservation. Energy initiatives are discussed in chapter 3.

5. Descriptions of these components and the twenty-three primarily environmental projects are presented in annex B. For purposes of identification, primarily environmental projects approved in fiscal 1993 appear in bold type in the text of this chapter.



WORLD BANK PHOTO

Subtropical rainforest in eastern Paraguay. A new study shows that environmental assessments (EAs) are having a significant positive impact on project design, although capacity to carry out EAs still needs to be strengthened both in borrower countries and the World Bank.

2. Assessing and Mitigating Adverse Impacts of Bank-Financed Projects

The World Bank is striving to incorporate environmental concerns not only into those projects described in chapter 1, which are specifically environmental in focus, but into all Bank lending activities. Thus, all investment projects are now screened for their possible environmental results, and their design and implementation are adjusted accordingly. Although such mechanisms are designed to ensure that Bank-financed projects "do no harm" to the environment or to local populations, in the longer term they also provide the means to enhance the project design and improve performance. For example, through strengthening institutions and developing the technical capacity of borrowers, Bank assessment procedures increasingly allow projects to realize environmental and social benefits, rather than simply react to potential costs.

This chapter examines the Bank's past and ongoing experience with environmental assessment. It reviews positive steps taken, weaknesses identified, and likely future trends. Two conclusions should be emphasized. First, environmental assessment (EA) makes a difference at the project level: despite its relative newness, EA has led to identifiable improvements in project design and implementation. Second, EA makes a difference at the national level: because EAs are carried out by borrowers themselves, in-country EA capacity is also being strengthened. On the social side Bank initiatives are more recent. Resettlement is a special area of concern. Prompted by the findings of the Independent Commission on Narmada, all Bank-financed projects involving resettlement are being reviewed. The preliminary findings and future steps are outlined below.

Environmental Assessment of Bank-Financed Projects

Since October 1989 all investment projects proposed for Bank consideration have been screened for their potential environmental impacts.¹ Under current practice, projects expected to have significant, sensitive, irreversible, or diverse negative impacts are classified as category "A" and require a full EA. Those anticipated to have less significant and

sensitive impacts are classified as category "B" projects and require less extensive environmental analysis. Projects expected to have insignificant or no impacts are placed in category "C," for which no additional analysis is required.

Table 2-1 summarizes investment projects under preparation as well as those approved by the Bank's Board of Directors in the past twelve months, by region and EA classification. As it indicates, more than half of all Bank investment projects now at the pre-approval stage are subject to some degree of environmental analysis, with 14 percent of the total requiring full EA. Of the sixty category A projects in the pipeline at the end of June 1993, more than half were in Asia, and 38 percent were in East Asia alone. Table 2-2 shows the sectoral distribution of category A projects. These projects also support subsectoral investments, including energy sector privatization; oil, gas, hydroelectric, geothermal, and renewable energy; forestry; flood control, irrigation, and rural land management; highways and port facilities; and sewerage and water quality control. Annex B provides descriptions for projects approved in fiscal 1993 that received a full EA.

Bank Experience in Environmental Assessment

During the past year the Bank has sought to monitor the practical effectiveness of its EA procedures. This section first reviews the inputs of

Table 2-1. Investment Projects under Preparation and Approved in Fiscal 1993, by EA Category and Region

<i>EA category</i>	<i>Africa</i>	<i>East Asia</i>	<i>South Asia</i>	<i>Europe/ Central Asia</i>	<i>Middle East/ North Africa</i>	<i>Latin America/ the Caribbean</i>	<i>Total</i>	<i>Percentage of total</i>
<i>Under preparation</i>								
A	10	23	7	6	4	10	60	14
B	53	31	21	13	18	41	177	42
C	51	14	17	18	4	32	136	33
Not yet classified	25	2	5	6	4	3	45	11
Total	139	70	50	43	30	86	418	100
<i>Approved</i>								
A	2	8	2	1	1	5	19	9
B	28	18	11	5	10	18	90	43
C	29	17	9	17	5	22	99	48
Total	59	43	22	23	16	45	208	100

Table 2-2. Category A Projects under Preparation and Approved in Fiscal 1993, by Sector

Sector	Under preparation		Approved in FY93	
	Number of projects	Percentage of total	Number of projects	Percentage of total
Agriculture	13	22	2	10
Energy	20	33	10	53
Industry	2	3	0	0
Tourism	0	0	1	5
Transport	10	17	3	16
Urban development	8	13	0	0
Water and sanitation	3	5	3	16
Other	4	7	0	0
Total	60	100	19	100

recent EAs on project design and then describes the constraints to effective EA practice as identified in a review of early Bank experience with its EA procedures (box 2-1).

IMPACT OF ENVIRONMENTAL ASSESSMENT ON PROJECT DESIGN. Evidence from projects approved in the past year shows that in many cases EA has improved project design. Substantial design changes related to EA have occurred in projects involving port development and flood control in China, private sector energy development in Côte d'Ivoire, rational use of forestry resources in Gabon, energy deregulation and privatization in Jamaica, sewage treatment in Korea, renewable energy development in India, natural resource management in Paraguay, and geothermal power development in the Philippines. The Yacyreta Hydroelectric Project II in Argentina offers an encouraging example of the potential of EA to improve project design significantly and to mitigate against possible negative environmental and social impacts.

In the past year the Bank supported the Yacyreta hydroelectric scheme on the Parana River with a third loan, that for Yacyreta Hydroelectric Project II. The EA of this most recent loan prompted the development of an updated, comprehensive Resettlement and Environmental Management Plan. As a result of the EA process, the new loan supports a network of compensatory protected areas encompassing more than 80,000 hectares, as well as wildlife rescue and relocation, to offset the loss of natural ecosystems from the dam's reservoir. Water contamination and health-related problems will be prevented through improved water supply and wastewater collection, treatment, and disposal systems in the riverine cities of Posadas and

Box 2-1. Review of Early Bank Experience with Environmental Assessment

During fiscal 1993 the Bank completed a comprehensive review of EA, covering the period from October 1989 through June 1992. The review supports several key conclusions.

- Building of borrower capacity—including technical assistance, institutional support, and in-country training for EA—can greatly strengthen the treatment of environmental aspects of local, sectoral, and national decisionmaking.
- Borrower capacity should be taken into account in defining project preparation schedules; the EA process must be started early enough to accommodate local and Bank review procedures.
- Extensive consultation with affected populations and local NGOs is essential for effective assessment; it should occur routinely in determining the scope and content of an EA.
- The quality of EA reports, although mixed, is improving.
- Project designs are being altered to incorporate EA findings—although here too there is room for improvement.
- Training in EA for Bank staff must be given greater priority.
- Sectoral and regional EAs have high potential benefits and should be used more widely in Bank investment operations.

Encarnación. The project will provide for technical assistance for industrial pollution control. Potentially important archaeological remains and historical structures are being recorded and salvaged. In addition the project will support improved management of the Parana River's native fish species, and the construction of water releases for electricity generation will take into account environmental objectives as well. The project's resettlement operation is designed to ensure, through the active participation of local governments and the affected people, that all displaced families are reestablished in improved socioeconomic conditions, including new dwellings or business establishments as well as improved health, literacy and education, and community development services.

In addition to influencing project design, EA increasingly influences the terms of a project's negotiation and its implementation. Such influence is evident in nearly all the cases cited above, in two hydropower projects and two highway operations in China, and in a gas transmission project in Thailand. Listed below are other examples of the impact of EA on projects approved in the past year.

- *China—Taihu Basin Flood Control Project.* The EA has promoted coordination among regional projects, generated commitment for preparation of a basin plan, and clarified the roles of key environmental and implementing agencies in preparing and reviewing EA reports.
- *Republic of Korea—Petroleum Distribution and Sector Management Improvement Project.* The EA has increased awareness of safety issues and the need for risk assessment while helping to train local consultants in EA preparation.
- *India—Renewable Resources Development Project.* The EA has highlighted the need to reduce the environmental impact of existing facilities, thus helping to improve the quality of life and working conditions of the affected populations.
- *Russian Federation—Oil Rehabilitation Project.* The EA, which was more of a sectoral than a project EA, has drawn attention to the magnitude of environmental neglect in western Siberia.
- *Thailand—Bongkot Gas Transmission Project.* The EA has led to strengthened borrower institutional capacity and the development of safety and environmental standards and included assistance to train local consultants in EA techniques.

CONSTRAINTS AND WEAKNESSES. Despite these encouraging impacts on project design, a number of constraints and weaknesses in environmental assessment remain.

- *Public consultation* in many of the initial EA exercises was found to be disappointing. In many of the projects surveyed, consultation with affected populations and local NGOs had been limited at best. Where consultation did occur, however, it helped improve project design and correct local misconceptions of investments and their impacts.

Bank experience during the past year indicates that progress is being made in this area. EA training for Bank staff has given increasing attention to consultation issues and techniques. At the "scoping" stage, some 70 percent of fiscal 1993 assessments included consultation with several different constituencies: non-project agencies, local scientists or research institutes, and—in about a quarter of these cases—local populations and NGOs.² In addition about one-half of the EAs included consultation following release of a draft assessment report. In general experience in fiscal 1993 has confirmed the key benefits of local consultation: improved information on environmental and social impacts, better project design, and increased community awareness of projects and their

impacts. The Forestry and Environment Project in Gabon, approved this year, illustrates how extensive participation by affected populations has helped raise environmental awareness, establish proper monitoring entities, and encourage a strong sense of ownership of the project (box 2-2).

- *EA as a proactive instrument* of project design and implementation is clearly understood in theory but has not been implemented adequately in practice. Although there is increasing awareness in borrowing countries and the Bank that EA should be used as an instrument of project design, for the most part EA is still employed reactively. The "add-on" nature of environmental concerns, the lack of breadth in identifying relevant issues, the limited attention to alternatives, and the weak mitigation plans in some projects show this to be the case.
- *The quality of EA documents* received by the Bank remains mixed. The most prevalent weaknesses involve analysis of alternatives,

Box 2-2. Environmental Assessment and Project Design in Gabon

Gabon's Forestry and Environment Project aims to improve the country's use of its forestry and wildlife resources. Major components include institution-building, environmental training (focusing on the private sector), and support for preparing a NEAP. The project's physical components include establishing wildlife reserves, rehabilitating 5,000 hectares of forest plantations, and planning forest operations in 40,000 hectares of secondary regrowth.

The forestry component is located in rain forest adjacent to urban and coastal areas, where logging pressures have depleted resources. Although the project involved neither resettlement nor primary tropical forest, an EA was prepared in response to concerns that improved road access could stimulate wildlife poaching, soil erosion, and other forms of ecological degradation. Possible effects on villages near the proposed workers' camps also needed to be considered.

Project design changed significantly as a result of the EA. Standard mitigation measures such as revegetation, drainage, and waste handling are now included. New elements have been added to address indirect effects: new conservation areas, for example, will be created to compensate for the loss of original habitat. Such measures are to be carried out in close collaboration with the World Wildlife Fund. The project also includes components to upgrade local village infrastructure, improve agricultural practices, and make extension courses on natural resource management available to local people.

mitigation measures, monitoring, and institutional arrangements. These shortcomings are often due to borrowers' underdeveloped EA capacity and to Bank and borrower preparation schedules. The past twelve months have shown improvement in both areas, and the quality of EA reports is rising. Examples of good EA documents prepared during the past year include the Forestry and Environment Project in Gabon discussed above, the Kwangju and Seoul Sewerage Project in Korea, the Energy Deregulation and Privatization Project in Jamaica, the Natural Resources Management Project in Paraguay, and the Leyte-Cebu Geothermal Power Project in the Philippines.

Strengthening Environmental Assessment

To address these shortcomings of early experience in EA, the Bank has focused on two critical areas: building EA capacity both in borrower countries and in the Bank itself; and improving the EA process.

BUILDING CAPACITY. The capacity constraints of borrowers have required many countries, particularly in Sub-Saharan Africa, to rely on external consultants to produce essential EA documents. Thus the majority of EAs completed in the past twelve months were prepared by private (and external) consultants. Financial costs ranged between \$30,000 and \$400,000 per assessment, with an average of about \$150,000. EA costs generally represent no more than 5 to 10 percent of the total costs of project preparation. About one-half are now financed directly by borrowers, and the rest are supported by consultant trust funds, the Bank's Project Preparation Facility, or other sources. These constraints have led to significant borrower demand for EA training, and the Bank's Economic Development Institute (EDI) is working to meet this demand (see chapter 6). Moreover, as noted in chapter 1, an increasing share of Bank environmental lending is now devoted to strengthening borrower EA capabilities in developing countries. A notable recent example is the Environmental Technical Assistance Project in China. The EA component of this operation, which is described more fully in box 2-3, will support the preparation of environmental assessments for new investment projects presented for Bank consideration, help Chinese authorities further develop national EA guidelines and methodologies, and strengthen local training programs for EA.

The institutional impact of the EA process in borrowing countries appears to be significant. Examples where institutional strengthening followed project EA include three operations in China (two for highways

Box 2-3. Strengthening Environmental Assessment in China

The EA subproject of the recently approved Environment Technical Assistance Project in China has three objectives: assisting the preparation of EAs for Bank-financed projects, strengthening the existing Chinese EA system through further development of technical guidelines and methodologies for conventional investment projects and through the elaboration of new guidelines for sectoral and regional EAs, and strengthening training programs aimed at Chinese institutions responsible for carrying out or administering EAs.

Lines of credit will support the first two objectives. An EA-preparation component will finance between eight and ten full EAs for Bank-supported projects. An EA-strengthening component will concentrate initially on developing guidelines for sectors such as port and harbor development. Subsequently, this component is expected to focus on regional development projects: proposals have already been tentatively identified for several urban industrial zones, coastal bays, river basins, and deltas.

Training programs will focus on improving country officials' EA skills and on building borrower EA training capacity. These programs will build on materials prepared under a previous EA technical assistance program of the Asian Development Bank. Training will take place at five regional centers and involve about 900 professionals, including EA practitioners from environmental research institutions, universities, and technical design institutes, as well as managers and regulators of the EA system from the National Environmental Protection Agency, provincial and municipal environmental protection bureaus, and sectoral ministries.

All subproject proposals under the two lines of credit will be submitted to the Bank for final approval based on previously agreed selection criteria. The training component will cover the cost of a training expert to assist the agency at two stages during implementation: at the beginning of the project, to help design the training program, including the organization of courses and preparation of teaching materials; and near the end, to prepare case studies reflecting the results of EAs carried out under the other two subproject components.

and one for flood control), an oil sector loan to the Russian Federation, as well as others in Gabon, Jamaica, and the Philippines. Implementation of EA-related measures is likewise expected to have a substantial institutional impact on Egypt's Private Sector Tourism, Infrastructure, and Environmental Management Project. Among the most important institutional consequences of project-related EA activities are improved local consultant capacity, national EA capability, and interagency collaboration.

The Bank's own EA resources may require further strengthening, particularly for category A projects, for which EA-related activities some-

Table 1. Economic Performance, 1960–88
(percent, except as otherwise specified)

<i>Indicator</i>	<i>Mauritius</i>	<i>India</i>	<i>Sri Lanka</i>	<i>Taiwan (China)</i>
Rate of growth of income per capita, 1960–88	2.8	0.9	1.3	6.4
Rate of growth of population, 1960–88	1.7	2.2	1.9	2.2
Income per capita, 1960 (1985 U.S. dollars)	2,000	600	1,400	950
Share of investment in GDP, 1960–88	12	17	21	23
Literacy rate, 1960	60	28	75	54
Primary school enrollment rate, 1960	98	61	95	96
Average years of schooling, labor force, 1986	4.5	1.9	6.2	8.4

Sources: For income, investment, and population, Heston and Summers (1991); for literacy and schooling, Levine and Renelt (1992).

three economies and in the Heston-Summers data used here, it is substantially lower.¹ Investment in human capital, while better than in India, is not outstanding. Income per capita at the beginning of the sample period was higher than in the other three economies because of the high income earned by the wealthy owners of sugar plantations, but the distribution of income was very uneven.

When Mauritius was preparing for independence from Great Britain in the 1960s, prospects for development did not seem promising. The economy was dependent on sugar exports for 99 percent of its exports. James Meade, commissioned by the British government to comment on economic policy, entitled his 1961 report "Mauritius: A Case Study in Malthusian Economics" and devoted it to a discussion of how to cope with a real wage that would inevitably fall as population on the island grew. Young people with higher levels of education were encouraged to emigrate, but it was feared that not enough would leave. A local import-substituting manufacturing sector existed only because of protective tariffs.²

Since independence in 1968, the political situation has been fluid, almost to the point of instability. Up to the present, corruption, fraud, and drug trafficking have been a continuing source of government scandals. Political parties are organized along ethnic and religious (primarily Hindu and Muslim) divisions. There has been no majority government since independence. The emergence of a

1. According to the national income accounts data of the World Bank (see Levine and Renelt 1992), Mauritius, India, and Sri Lanka all invest about 20 percent of GDP. The Heston-Summers numbers adjust nominal investment spending to correct for variation in relative cost of capital goods in different countries. In principle, the real investment numbers from Heston and Summers are more relevant, but the downward adjustment for investment in Mauritius seems implausibly large.

2. The account that follows is drawn from World Bank data and from published studies by Gulhati and Nallari (1990) and Bowman (1991).

Box 2-4. Sectoral and Regional Environmental Assessment

Sectoral and, to a lesser extent, regional EAs have recently gained greater prominence within Bank and borrower activities, particularly in the transport and agriculture sectors. Among the fiscal 1993 operations requiring full EA, the Irrigation Development Project in Chile and the Henan Highway Project and Guangdong Highway Project in China either involved or included significant components subject to sectoral EA. During the past few years, category B projects involving road improvements in Colombia, Indonesia, Nepal, Nigeria, and elsewhere have also taken a sectoral approach to environmental analysis. In the past twelve months a regional EA was prepared for the Paraguay Natural Resources Management Project, and another regional assessment is under way for the Arun Hydropower Project in Nepal.

Within the transport sector—perhaps the most advanced in the use of sectoral EAs—the approach followed has been to establish a system of environmental screening and analysis of proposed subprojects, together with provisions for strengthening local, regional, or national institutions responsible for environmental assessment and management. Full EAs for subprojects found likely to have significant environmental impacts, including the definition of required mitigation measures, are then prepared. A similar approach is being followed in operations involving financial intermediaries, particularly in Latin America and the Caribbean, where several such projects are under development.

The Latin America and the Caribbean Region has developed guidelines for EA in the electric power sector, which are expected to be adopted by the World Bank and the Inter-American Development Bank to provide a common framework for sector lending and to help strengthen national institutional capacity for environmental management. These guidelines are being used in connection with power sector operations in various countries, including Colombia, Dominican Republic, El Salvador, and Trinidad and Tobago. A handbook on EA of roads projects is being completed by the Bank's new Environmentally Sustainable Development Vice Presidency for use in training, project preparation, and implementation. In the future, the growing use of sectoral and regional EAs is expected to continue as their advantages become better known among borrowers and Bank staff. Regional EAs are likely to focus particularly on forest and water resource projects.

is also growing, and guidelines for the EA of operations involving privatization are being prepared. One example of Bank assistance in this area is the environmental component of the Privatization Technical Assistance Project for Russia, which is designed to address the most pressing environmental issues associated with the privatization

of large-scale, pollution-intensive enterprises. Funding will be provided for environmental reviews of large enterprises to be privatized and for full environmental audits of selected chemical, fertilizer, and steel industries, particularly where public health may already have been harmed and where privatization is simply not feasible without prior assessment of possible environmental liabilities.

Environmental issues are also addressed as part of the privatization of industry, energy, and infrastructural operations in Latin American and the Caribbean countries. Bank staff have facilitated privatization by helping countries address the concerns of potential investors to make transparent environmental liabilities. Two approaches to environmental assessment within privatization efforts are presented in box 2-5.

General EA guidance is now being more widely disseminated. The *Environmental Assessment Sourcebook* has been translated into several

Box 2-5. Environmental Implications of Privatization in Latin America

Important environmental issues are being raised in the context of the privatization process under way in the Latin America region. The challenge for the Bank has been to help countries develop a workable and practical approach that addresses both the concerns of potential investors and the constraints and limitations in the host countries' environmental policy frameworks and institutions. Investors want to ensure that the operations they purchase do not bear unrecognized environmental liabilities. They also expect some degree of stability and transparency in the environmental policy framework. These international operators are also sensitive to environmental issues because they are concerned about their environmental image—increasingly important in international markets.

The Bank is helping countries to privatize state-owned enterprises and to address the potential environmental implications of this process. Two approaches have been used. First, an "environmental stability agreement" approach was used in the privatization of a mining company in Peru. Second, while Argentina's state oil company was being sold to private investors on international stock markets, the Bank and the government were concluding the preparation of a project to clean up the company's main refinery and three oil fields. This will reduce the new private owners' potential contingent liabilities and help them meet tightening national environmental standards. This "privatization clean up" approach was prominently mentioned in the government's prospectus (initial public offer) to potential investors for these purposes. Environmental issues are raised both in the course, and as a result, of this process.

languages, including Spanish, Chinese, and Russian. The original sourcebook has been incrementally revised and expanded in "Updates" on environmental screening and geographic information systems. The updates will continue to appear periodically during the next few years so that EA best practice is continually disseminated.

Most multilateral and bilateral agencies involved in development assistance and a growing number of borrowing countries have put in place some form of legal EA requirements. Sometimes inconsistent requirements are a source of disagreement and may cause complications and delays in project implementation. The Bank has taken the initiative at the multilateral level to improve harmonization of EA requirements by inviting thirteen multilateral financial institutions to a technical seminar in September 1993. Participants will discuss respective EA procedures and how they might be made more effective as a planning instrument and more coherent where cofinancing is involved. Similar initiatives are under way at the bilateral level, where the Netherlands and Canada have taken the lead.

In addition to the experience gained from practice, the Bank continues to learn from, and actively participate in, the larger professional and scholarly development of EA. As host to the 1992 Annual Meeting of the International Association for Impact Assessment (IAIA), the Bank provided an international forum for the exchange of ideas and experiences among some 425 professionals from forty-five countries, representing member governments, the private sector, academia, and the NGO community. Proceedings from the meeting, *Environmental Assessment in Industrial and Developing Countries: Proceedings of the IAIA 1992 Congress*, are being prepared for publication in the World Bank Symposium Series.

An important step toward full integration of environmental factors into mainstream economic decisionmaking must now be to expand the application of EA so that it can provide guidance to policy-based lending, which, after project lending, is the second largest use of Bank resources. Because work in this area is still limited, the Bank has initiated a study of environmental impacts of macroeconomic policy (see chapter 3). Following an initial analysis of environmental considerations in adjustment lending, work is now in progress on a series of case studies, each of which addresses the relation between economic or sectoral policies and a particular environmental problem. These studies will provide background for the assessment of significant environmental consequences of economic policies—particularly adjustment policies—in addition to the present emphasis on the environmental impact of individual projects.

Social Assessment of Bank-Financed Projects

To be effective, the Bank's lending must be not only environmentally but also socially sustainable. As noted above, the Bank now has in place the policies, procedures, and resources needed to take environmental factors into account in investment lending. Although much has been done to systematize and internalize social concerns into the Bank's work, the social variables of development are often not adequately addressed. Efforts are under way to improve social analysis in specific areas of the Bank's work (for example, resettlement operations, poverty assessments, indigenous people, and gender issues) and to explore new ways of reaching the poor (through participation, NGO intermediation, and building of institutional capacity). Much remains to be done to improve the social soundness of project planning and implementation.

To these ends, the Bank has established a Social Policy and Resettlement Division within the Environment Department. The new division's principal objective is to promote socially sound development by building developing countries' capacity to take account of social factors in project planning and execution. Its work program includes:

- Specifically mandated tasks in the areas of resettlement, indigenous people, and cultural property
- Support for core elements of the Bank's environmental work, including EA and natural resource management
- Development of a seminar series and training programs in social policy
- Drafting a social policy statement intended to clarify the various aspects of the Bank's approach to social development
- Preparation of guidelines on social assessment of Bank-financed projects.

Social Assessment Procedures

Perhaps the most important element of the Bank's emerging social policy is the ongoing effort to improve procedures for the social assessment of Bank-financed projects. Social assessment guidelines are being developed in collaboration with a Social Policy Thematic Team, whose members are drawn from throughout the Bank's Vice-Presidency for Environmentally Sustainable Development and from other vice presidencies, notably Human Resources Development and Operations Policy. These guidelines will indicate when social assessment is needed, explain the types of information required, and show how social analysis can

improve targeting, delivery, community participation, and project sustainability. To concentrate scarce human and financial resources and maximize learning from experience, a small number of African and Asian operational Bank departments will pilot social assessment procedures. Together with staff from the new Social Policy and Resettlement Division, Technical Department staff from the regions will provide technical support to their pilot operations and will disseminate the findings of their work.

Involuntary Resettlement

Involuntary resettlement is one of the most difficult and controversial aspects of the Bank's work. Resettlement issues range from the large-scale displacement caused by big dam projects to the relatively smaller-scale involuntary movement of population that is often associated with urban infrastructure, transport, sanitation, and biodiversity projects. The Bank's first resettlement policy, which was issued in 1980, emphasizes that where displacement cannot be avoided, projects should include plans for the economic reestablishment of people displaced. The attention paid over the years to the social issues of resettlement, in both policy and operations, has contributed to asserting the importance and usefulness of social analysis for much broader areas of the Bank's lending as well as project and sector work. During the past two years the basic elements of the Bank's resettlement policy have been adopted by the Asian Development Bank, the Inter-American Development Bank, and bilateral aid agencies of the Organization for Economic Cooperation and Development.

Bank critics have claimed that although the policy is good, its implementation is not. A test case came with the Independent Review of the Narmada Sardar Sarovar project (the Morse Report). The report was commissioned by the Bank to assess the adequacy of the plans for resettling people who would be displaced by this large dam and reservoir complex in western India and to determine the extent to which the Bank was following its own prescribed norms and procedures. Made available to the public in fiscal 1993, the final report found that despite the project's many benefits, there were serious flaws in how the borrower and the Bank prepared and managed the resettlement and environmental aspects of the project.

Following the Morse Report, the Bank's management took organizational and operational measures to improve policy implementation. A Bank-wide review of all ongoing projects with involuntary resettlement was initiated in January 1993 and is being coordinated by a central task force established in the Environment Department. Working groups on

resettlement have been created in each of the Bank's six operational regions. The final task force report will be delivered in early 1994. Nevertheless some preliminary findings and recommendations are emerging.

- The bulk of involuntary resettlement in Bank projects occurs in Asia, where high population densities coupled with rapidly growing infrastructure needs leads to substantial displacement.
- Significant resettlement is occurring in urban and infrastructure projects. The trend away from large-scale, dam-related resettlement toward smaller but frequent resettlement operations in urban development projects is likely to continue as developing countries strive to provide safe water, sanitation, and better transportation and housing for their rapidly growing cities.
- Resettlement performance by both the Bank and its borrowers varies significantly across regions.
- Consistent involvement by the Bank—especially where technical assistance is provided during the planning and implementation of projects' resettlement components—appears to help ensure positive outcomes for displaced people.

Aside from these more general conclusions, the review indicates that certain specific problems recur in projects involving resettlement.

- Resettlement is often not identified as a major issue until late in project development. As a result, plans are inadequately prepared and do not form integral parts of project designs and implementation responsibilities.
- The resettlement policies and legal provisions of borrowers are generally an extension of land appropriation and compensation laws, whereas the Bank's approach focuses on how to restore incomes and economic and social viability. Borrowers face considerable difficulties in trying to resettle large groups of people without adequate policy and legal frameworks.
- Organizational and management frameworks for resettlement in developing countries are usually very weak.
- Technical skills—knowledge of how to restore income levels, for instance—are often inadequately used in resettlement operations.

Several steps are being taken to address these problems. Expanded training—both for staff and borrowers—is likely to be a particular focus of activity during the next few years. Promoting regional seminars and helping to develop internal training curricula have already helped to

introduce new approaches to resettlement. For the coming year, the Bank's EDI has planned training courses in China, India, and Turkey that involve policy and operational staff, NGOs, and academics.

Technical assistance has been—and will continue to be—provided to borrowers to revise and systematize resettlement policies. Several sectoral agencies in borrower countries, such as Colombia, Côte d'Ivoire, some states in India, and Mexico have worked with the Bank to revamp their policy and planning frameworks. Making national and sectoral policy frameworks more conducive to successful resettlement is an area in which the Bank has a unique role to play and is one of the Environment Department's highest priorities. Technical assistance can also help to improve the internal structure and coordination of agencies responsible for resettlement. Bank specialists have worked with several Latin American countries to review bottlenecks to effective resettlement administration and to raise the institutional profile of their social units. In addition the Bank can emphasize some of its more traditional technical strengths: developing pilot projects, manuals, and guidelines for income restoration links resettlement to the Bank's more general concerns with poverty alleviation and income generation. The skills, experience, and resources that the Bank and other agencies have developed in such areas over the years need to be more fully deployed on resettlement operations.

Many issues must be resolved within the institution. The Bank needs to make more use of multidisciplinary teams (including social and environmental scientists) throughout the design of a project. It should also adopt a concerted strategy to push the work on resettlement components into mainstream project processing by borrowers and staff. At present few country departments have the social expertise needed to help prepare, fully appraise, and then supervise resettlement components. In addition, because most countries do not have much experience with successful resettlement operations, more technical assistance and sustained supervision is needed than in more familiar activities. The Bank should also reconsider its role in providing financial resources for resettlement, since direct Bank financing for resettlement can help resolve some financial constraints. In particular the Bank and IDA need to increase their participation in providing the financial resources earmarked for reestablishing those displaced. This could include, depending on circumstances, direct financing for land and land improvements. At present these activities are nearly always covered by counterpart financing of compensation payments. Other Bank-related issues that require further discussion are the need for more new techniques and policies for avoiding or minimizing displacement; public involvement in all stages of resettlement programs; review of resettlement in sectoral studies and country dialogue; and Bank attention to resettlement during

the implementation of projects through increased supervision, independent expert panels, and, where warranted, mid-term reviews.

Finally, since few of the institutions responsible for resettlement have the skills or authority to carry it out effectively, it is essential to promote new participatory approaches to resettlement design and implementation. Mechanisms such as community consultations, local level monitoring, collective bargaining, NGO involvement, and neutral arbitration can increase accountability for project designs and diversify the skills deployed for resettlement operations.

Indigenous People

The World Bank was the first multilateral agency to issue an explicit policy for the treatment of indigenous peoples in internationally financed development projects. The initial Bank policy dates back to 1982 and was designed to address issues pertaining to relatively isolated and unacculturated indigenous peoples.³ In September 1991 the Bank issued a revised policy (Operational Directive 4.20), incorporating the institution's own experience with projects affecting indigenous peoples as well as new thinking by other international agencies. Although the revised directive maintains the core protective measures of the previous policy, it extends the definition of indigenous peoples to include groups that maintain social and cultural identities distinct from those of the dominant society in which they live and groups that are disadvantaged in the development process. These groups may include, along with isolated forest-dwelling indigenous populations, nomadic pastoral peoples of the Middle East and North Africa and indigenous peasants of South and Central America.

The revised directive also strengthens the previous policy by stressing the need to promote the informed participation of indigenous people and their sharing in the social and economic benefits of development projects. Along with direct support for project components or programs (termed Indigenous Development Plans), the new directive highlights the importance of incorporating indigenous peoples' concerns into Bank country and sector work and into Bank-funded technical assistance and institution strengthening.

In addition the new policy calls for the design of regional guidelines to help Bank task managers prepare projects that may affect indigenous peoples. The Africa Environment Unit, for instance, has already begun to develop such guidelines and is compiling a database of ethnographic and socioeconomic information on minority tribal or ethnic groups. In Latin America, where Bank work with indigenous peoples is most advanced, a major study has been completed of poverty and indigenous

peoples. The Latin America Environment Division is also working with the country departments and the new hemispheric Indigenous Peoples Development Fund in La Paz, Bolivia, to design a training and capacity-building program for indigenous peoples. As part of a special targeting program in the health and nutrition sectors, the India Department has begun to investigate tribal policies and their implications for the Bank's poverty reduction efforts in India. A project under preparation in Viet Nam contains an innovative bilingual education program for upland ethnic minorities. Finally, the Bank has just approved its first natural resources management project dealing entirely with a nomadic tribal group, the Bedouin of the Matruh district of western Egypt (box 2-6).

During the past year efforts were initiated to incorporate indigenous peoples and other local communities into biodiversity conservation projects funded by the Bank and by the GEF. The GEF now has a set of interim guidelines for conducting sociocultural profiles and preparing community participation plans with local populations in areas rich in biodiversity. The Bank is also conducting a mapping project in three countries, designed to graph the interaction of indigenous and other traditional peoples with areas set aside for biodiversity conservation.

Through its Small Grants Program, the Bank is assisting several conferences and projects that have been organized by indigenous peoples themselves and that promise to increase our knowledge of how such peoples can more fully participate in, and benefit from, the development process. As part of the United Nations International Year for the World's Indigenous People, the Bank will be hosting a conference, Traditional Peoples and Sustainable Development in September 1993.

Cultural Heritage

During the past year the Bank's work in the area of cultural resource management has expanded through policy development, operational support, training, and international coordination. As a result the Bank is establishing a formal cultural heritage conservation program that focuses on historic urban environments, the economic valuation of heritage, social assessment and cultural heritage conservation, site management, and the incorporation of cultural property concerns into NEAPs.

A draft Operational Directive on cultural property was completed in the past fiscal year. NEAPs prepared by several countries—including Egypt, Mali, Mexico, and Senegal—contain important cultural heritage policy initiatives, and formal training on cultural resource management is now included in EA seminars and workshops. A Bank report, "Cultural Property in Environmental Assessments of Projects in Sub-Saharan Af-

Box 2-6. Participatory Environmental Management in the Matruh Region

Since the seventeenth century, nomadic tribes known as the Bedouin have roamed northwestern Egypt in search of pasture and water for their livestock. But in the late 1950s, as the Bedouin began to settle on the land, the farm life of the Matruh district's forty tribes introduced new pressures of overgrazing and soil erosion to the region's drylands. To address this growing problem, the Egyptian government is working with the Bank to protect the Matruh region's environment by conserving the area's land, water, and vegetation.

A \$22 million IDA credit aims to help one-third of the district's 19,000 people to improve their resource management approaches and practices. Efforts will focus on improved watershed management, research on dryland farming, livestock production, rangeland management, and sustainable agricultural development. Under the plan the Bedouin will improve their use of scarce rainfall, which is the only water source for the people and their animals and crops. Reservoirs and underground cisterns will be built to hold water for domestic use, irrigation, and livestock. Small earth and stone dikes will be laid along contours of the land to slow down and divert the runoff to farms. Small cemented dikes will be built to stop floods, thereby reducing erosion and creating new fertile farmlands. Also the project will support efforts to plant trees and shrubs to act as windbreaks and allow for the growth of more grasslands for use as fodder for livestock. Training directed to the needs of Bedouin communities, agricultural extension services, and finance for rural entrepreneurs will be provided.

Community groups, including men and women from each of the forty tribes, will take part directly in designing, implementing, and monitoring the work. Each tribe will then craft a community action plan and decide which kinds of dikes, dams, and cisterns would help them best preserve their land ecosystem from degradation. The project will especially target the area's small families and encourage women to take part in planning and implementation. By helping to conserve the Matruh's resources, the government intends to make the land more productive, thereby boosting agricultural and animal production and earnings for the Bedouin.

rica," alerts staff and decisionmakers in the region to key conservation issues and provides information on expertise specific to the region. To explore further the dynamic of culture and development in Africa, the Bank organized an International Conference on Culture and Development in Africa, co-sponsored with the governments of Norway and Sweden, the Rockefeller Foundation, and the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Eleven papers presented by international experts at the conference considered the

themes of cultural institutions, conservation of the built historic environment, and development (as it relates to archaeology) and the environment.

On the operational side, among projects that address issues of cultural property management directly are the Paphos archaeological site improvement in Cyprus, Turkey's Patara Management Plan, the Yacyreta II project in Argentina, and the GEF Dana Wildlands Project in Jordan. New components for cultural property management are under development in China, Egypt, and Mali, and work is planned in the historic medinas of Morocco (box 2-7). This volume of work has generated closer working relations with other agencies and organizations, including the Aga Khan Historic Cities Program, UNESCO, the World Heritage Center, the European Community, the British Council and the British Museum, English Heritage, the Smithsonian Institution, and the Getty Conservation Institute. In addition the Bank participated in the Twentieth Session of the World Heritage Committee in Santa Fe, New Mexico.

Box 2-7. Rehabilitation of Morocco's Historic Cities

The medinas of Morocco's historic cities—centers of Moroccan commerce, learning, culture, and architecture—have been transformed in the past century into centers of poverty. Population density has overwhelmed the capacity of urban services to provide adequate sewerage, solid-waste disposal, and water supply. Polluting production facilities, particularly for metalwork and tanning, threaten worker health and safety and compromise the quality of the surrounding environment. Great architectural ensembles have fallen into ruin. Despite government investments in urban infrastructure and housing, the medinas have been largely bypassed. They have become the place of exile for the poor.

Now under identification is a proposed Bank-financed project that would help arrest the deterioration of these historic urban centers and provide opportunities to exploit their productive development potential. Concentrating on the medinas of the historic cities of Fez, Meknes, and Rabat-Sale, the project would need to address the following issues: upgrading infrastructure, with emphasis on sewerage, solid-waste disposal, water supply, electricity, and road networks; relocating of polluting industries to industrial parks; and rehabilitating significant historic ensembles for social uses, including community centers, children's libraries, health clinics, training centers, and tourism information centers. In addition a fund to renovate housing, workshops, and commercial premises would need to be established, coupled with an advisory service on historic preservation, and baseline studies of the physical and social composition of the medinas and an assessment of benefits in project areas.

Social Factors in Future Bank Work

Other initiatives that are designed to bring a sharper social focus to the Bank's environmental activities are also under development.

- *Natural resource management.* In support of sustainable rural development, the Bank is working to systematize and disseminate available information on the environmental, sociocultural, and technical factors that affect natural resource management in different agro-ecological zones. On issues such as water-user associations, common property resources, social forestry, and desertification, the existing literature needs to be simplified and made more accessible to borrowers and task managers. In other cases—such as identifying income-producing strategies that are consistent with conservation of biodiversity—additional analysis is required. To provide guidance on incorporating relevant data into project preparation, work on a natural resource management handbook has been initiated.
- *Protected areas.* Human populations in protected areas pose several critical policy challenges. Although some people in protected areas are long-term or indigenous residents, others are newcomers. Production strategies often differ between these groups. Thus some strategies may be consistent with biodiversity protection, but others will not be. Work is currently under way to identify populations in protected areas, determine their potential for participation in biodiversity protection, and examine policy issues that must be addressed when biological and social objectives conflict.
- *Consultation.* The Bank's new social policy expertise has been used to update the *Environmental Assessment Sourcebook's* recommended EA consultation procedures. Consultation procedures in the GEF have also been reviewed and changes in procedure and documentation recommended. Providing task managers and borrowers with clearly defined procedural tools for consultation will continue to have a high priority, and a training course on consultation is planned for 1994.

Notes

1. Formal policy and procedures for EA were first issued as an operational directive to Bank staff in October 1989. Supportive guidelines were provided in the *Environmental Assessment Sourcebook*, published in mid-1991. In October 1991 the 1989 statement was replaced by a revised directive, which refined the project

classification system and strengthened public consultation procedures. For further details, see *The World Bank and the Environment: Fiscal 1992*.

2. Detailed requirements for preparing an EA are defined during "scoping."

3. The Bank's original policy, Operational Manual Statement 2.34, states that, "As a general policy the Bank will not assist development projects that knowingly involve encroachment on traditional territories being used or occupied by tribal people, unless adequate safeguards are provided." Safeguards embedded in the original policy include the recognition, demarcation, and protection of indigenous lands, and the provision of culturally appropriate social services, especially to protect and maintain indigenous peoples' health.



WORLD BANK PHOTO

Schoolgirls in Bogotá, Colombia. Educating girls is one of the highest-return investments for reducing poverty and protecting the environment. Educated women earn more, have fewer children, live healthier lives, and are better stewards of the natural resources in their care.

3. Building on the Positive Synergies between Development and the Environment

The previous two chapters have addressed, respectively, World Bank activities specifically targeted to help countries strengthen the management of their environment, and measures taken by the Bank to ensure that potentially adverse environmental and social impacts from Bank-financed projects are assessed and mitigated. This chapter broadens the discussion to address Bank activities that are not primarily environmental in design but can have positive environmental impacts.

The chapter is organized around the two broad sets of development policies needed to attack the underlying causes of environmental damage. There is now wide agreement on these two approaches, and they were major themes of Agenda 21 and the Earth Summit. They can be summarized by the following two propositions:

- *Investing in people—alleviating poverty, addressing population growth, and developing human resources—is essential for environmental sustainability.* A central theme of the *World Development Report 1992: Development and the Environment* and Agenda 21 is the strong relation between poverty reduction, population growth, and environmental stewardship. Improved primary health care, education, population reduction, family planning, sanitation, water supply, and rural development are central elements of any strategy for sustainable development. The allocation of property rights to poor people has a demonstrably positive impact on rural and urban development. Improving the status of women—through better access to education, family planning, health care, and jobs—also yields high environmental returns.
- *Promoting the efficient use of resources benefits both the environment and the economy.* Most governments still subsidize the consumption of certain vital resources. Energy, water, wood, and pesticides, for example, are often inefficiently used because of misplaced government subsidies, which results in the degradation of the environment. Other important policies that can yield environmental and

efficiency gains include those directed at promoting more open trade and investment (thus facilitating technology transfer and more efficient allocation of resources), improved management of state-owned utilities (to reduce waste and expand the coverage of environmental services), and macroeconomic balance (by developing a longer-term outlook on the part of investors).

The discussion of the Bank's activities in these two areas will not be exhaustive, since details are provided by other Bank documents, in particular, *Implementing the World Bank's Strategy to Reduce Poverty: Progress and Challenges*, published in April 1993, and the 1990 and 1992 *World Development Reports* on poverty and environment, respectively. A brief selective coverage is warranted here, however, since in many ways these "win-win" policies and investments are the most important of all interventions to promote environmentally sustainable development.

Investing in People

It is now widely agreed that alleviating poverty and building people's capacity to improve their health and their economic and environmental well-being is essential for environmental sustainability. It is also recognized that environmental security is a critical component of economic security. Bank work during the past year has built on this complementarity between environmental protection and economic development with growing efforts to slow population growth, accelerate human development, promote sustainable agriculture, increase investments in water supply and sanitation, and clarify property rights for the poor.

Addressing Population Growth and Developing Human Resources

Growth rates of world population have slowed considerably from their high levels in the late 1960s and now stand at less than 2 percent a year. However, population growth remains at levels that will lead to a real increase in world population by as much as 3.7 billion during the next forty years; 90 percent of this increase is expected to take place in the developing world. High population growth rates make it more difficult for countries to invest in social and physical infrastructure and for institutions such as property rights to evolve. In rural areas large increases in population tend to lead to a faster conversion of land to agricultural uses, resulting in increased demand for water, fuelwood, and fodder and accelerated deforestation. Growing rural populations have swelled migration to the cities, increasing stress on urban environments and placing greater demands on critical urban infrastructure and services, such as for water and sanitation.

During the past twelve months, fifteen new investment projects with population components were approved by the Bank's Board of Directors, involving about \$180 million in loans and credits to support family planning services, fertility surveys, and census work. This sum represents an increase of about \$25 million over fiscal 1992. This rising trend is expected to continue in fiscal 1994, when as much as \$200 million for new projects with population components is expected. There are currently more than sixty population and family planning projects in the Bank's active portfolio. In these projects family planning is either the main focus or is a significant component of a health and social development project, and they represent more than \$1 billion in total loans and credits.

Focusing solely on the *supply* of family planning facilities, however, does not give a complete picture of Bank activities to support fertility reduction. Increasing the *demand* for family planning is equally important. Three sets of interventions are crucial to creating a demand for smaller families: those that improve health and reduce infant mortality; those that improve access to education (especially of females), the status of women, and resources available to women; and, most fundamentally, those that are targeted to reduce poverty and raise income levels.

Investments in maternal and child health and nutrition have been found to be powerful in promoting lower fertility; new commitments for such services (including population facilities) amounted to more than \$1.8 billion in fiscal 1993. Even more powerful are investments in female education. They raise the value of women as producers rather than as child bearers and help reduce women's dependence on husbands and sons, lessening their desire for children and increasing their demand for health services. During fiscal 1993 the Bank supported thirty-two education projects totaling more than \$1.9 billion. Thirteen of these were in Africa, ten in Asia, six in Latin America and the Caribbean, and three in the Middle East and North Africa region. The methods employed in Bank lending in education have been substantively broadened during the past few years. Strategies to target discrete groups (especially women and the poor) and to allow them to take better advantage of educational opportunities have been coupled with strategies to increase the capability of local institutions to provide quality education.

Projects that improve education for girls arguably generate the greatest returns of all projects. An important Bank study, "Social Gains from Female Education," released in March 1993, analyzed female secondary enrollment as compared to, or in combination with, the efforts of health and family planning programs to reduce fertility and infant mortality. The results show striking reductions in the infant mortality rate (from 105 to 78 per thousand) as a result of expanded of female enrollments. These reductions are much larger than those from doubling either the

number of physicians or the gross domestic product GDP per capita. Increasing secondary education for girls also has similar results in reducing family size (reducing births by 29 percent).

One obstacle to improving the condition of women in developing countries is the difficulty of developing techniques to promote their participation in designing and implementing projects. Although much work has been done at the international, national, and program levels to apply gender analysis tools to ensure the evolution of policies and action programs that support equitable human development, tools at the community level are lacking. As part of a long-term community organization process, it is important that issues of gender and equity be analyzed by local people themselves through their own data collection processes, irrespective of literacy. A resource book, *Gender Analysis Tools for the Community and Agency Level*, begun in the past year, will examine and provide a guide to tools available at the community level to include both women's and men's perspectives on their respective roles, the flexibility of those roles, their access and control over resources, and the distribution of benefits. These tools are of critical importance to support the process of bringing about change at the grassroots level.

Targeting Poverty Reduction

The *World Development Report 1990* recommends a two-part strategy to reduce poverty. First, policies should encourage broadly based economic growth that generates demand for labor. Second, priority should be given to social sector investments to improve living conditions and increase the capacity of the poor to respond to whatever income-earning opportunities may arise from economic growth. The strategy also emphasizes the need to provide a safety net to protect the most vulnerable members of society. To help pursue this strategy, the Bank works with countries to prepare country-specific poverty assessments and to design country-specific strategies that ensure that the Bank's programs support and complement countries' own efforts to reduce poverty.

Poverty assessments typically analyze the effectiveness of a country's economic management in promoting efficient, labor-intensive growth; evaluate the adequacy of government efforts to develop the human resources of the poor; and examine the extent, reliability, affordability, and cost-effectiveness of the social safety net for protecting the most vulnerable groups and the very poor. They provide the basis for a collaborative approach to reducing poverty by country officials and the Bank and help establish the agenda of issues for the policy dialogue. Poverty assessments have been scheduled for all borrowing countries, and by the end of fiscal 1993 twenty-seven had been completed. In

addition a great deal of analysis in country economic and sector reports complements poverty assessments or serves as building blocks in preparing assessments.

Bank interventions specifically targeted to the poor are monitored under the Program of Targeted Interventions (PTI). A project is included in the PTI if it includes a specific mechanism for targeting the poor or if the proportion of poor among project beneficiaries significantly exceeds the proportion of the poor in the population. The PTI provides a valuable way to monitor targeted lending, but it is only one aspect of the Bank's support for poverty reduction. Projects in the PTI complement broader macroeconomic and sectoral policies and public expenditures that are also part of the efforts of countries to reduce poverty. In fiscal 1993 the Bank supported seventy-three PTI projects with a lending volume of about \$5 billion, which represents 21 percent of total Bank lending. Of these, five—two in Brazil and one each in Egypt, India, and Turkey—were specifically environmental projects (box 3-1). In addition to investment projects that help reduce poverty, six of the seventeen adjustment

Box 3-1. Targeting the Complementarities between Environmental Improvement and Poverty Reduction in Turkey

The Eastern Anatolia Watershed Rehabilitation Project in Turkey will help restore sustainable range, forest, and farming activities in three relatively low-income provinces in the upper Euphrates watershed, reducing soil and forest degradation and sedimentation in reservoirs as well as increasing productivity and incomes. It will support the development of a participatory approach to watershed rehabilitation by involving farm families in the design and management of fifty-four micro-catchments in Malatya, Elazig, and Adiyaman provinces during a seven-year period.

The project illustrates the potential to target directly the complementarities between environmental improvement and poverty reduction. Soil degradation would be controlled through improved cropping systems, the establishment of terraces, and the introduction of conservation tillage. The forestry components of the project involve afforestation, the rehabilitation of oak coppice, riverbank protection through planting of poplars, and the establishment of conifer and fuelwood coppice plantations. In addition, through better management of natural resources, these activities will also increase incomes through expanded production of fodder, fuelwood, apicultural products, and horticultural and food crops. Increased output of these products is estimated to result in a net annual incremental income per village of \$70,000, or an average of \$525 per family.

loans approved in fiscal 1993 had significant components aimed at poverty reduction.

Strengthening Agricultural Research and Extension

A main objective of agricultural research and extension projects is to improve the welfare of rural farmers, but raising crop yields, preventing soil degradation, and adopting new technologies can also minimize environmental damage and reduce pressure to convert new land to agriculture. Increasingly, the Bank is emphasizing these links. Lending this year for the Integrated Pest Management Training Project in Indonesia, for example (described in chapter 1), will help farmers curb excessive use of ecologically damaging chemicals. Bank loans and credits specifically for agricultural research and extension services amounted to \$128 million in fiscal 1993 and include:

- The Gambia Agricultural Services Project, which aims to generate increased agricultural productivity and sustained growth of the incomes of small farming families. In addition to strengthening the analytical and planning capacities of the Ministry of Agriculture and the Ministry of Natural Resources and the Environment, the project will assist in consolidating and improving extension services for crop and livestock production, natural resource management, and the expansion of functional literacy programs. The project also supports a pilot project to test new approaches to promoting farmers' participation and self-management in irrigation water, rural savings and loans, and social infrastructure. The pilot project also includes an inventory of rangeland and a study of river flow and saline intrusion, which will support development of the country's national environmental action plan.
- The Republic of Uganda Agricultural Extension Project, which will assist the Ministry of Agriculture, Animal Industry, and Fisheries to improve its delivery of extension services, increase the skills of extension agents and farmers, and encourage farmers to adopt improved techniques. This project is part of the Bank's overall assistance strategy for Uganda, which is to shift the emphasis from short-term objectives to long-term sustainable growth and improved basic living conditions. One of the principal aims of this strategy is to arrest the worsening environmental degradation, making special efforts to reverse the depletion of the country's rain forests, and increase the intensity of cultivation of existing farmlands.

Cooperative research is critical to building the capacity for sustainable agriculture and protecting the environment. The Consultative Group on International Agricultural Research (CGIAR), a network of eighteen agricultural research centers sponsored by the Bank, the United Nations Food and Agricultural Organization, and the United Nations Development Programme, is now focusing on a two-pronged strategy of combining productivity growth with natural resource management. The CGIAR has designed an ecoregional approach (agro-ecological research in specified regions) to promote sustainable productivity through collaboration between scientists and farmers at the individual and community levels. CGIAR centers are geared to implementing the goals of Agenda 21, and a group of CGIAR centers heads an international effort to create sustainable alternatives to "slash and burn" cultivation. Other important areas of concentration in the past twelve months include plant breeding, preservation of biodiversity, integrated pest management, agroforestry and forest management, institution building, and socioeconomic policy research for fragile ecosystems. The Bank's contribution to the CGIAR in fiscal 1993 was approximately \$37 million.

Investing in Water Supply and Sanitation

Investment in providing clean water and sanitation also yield significant economic, social, and environmental returns. Inadequate sanitation is a major cause of degradation of surface and groundwater and a principal cause of high morbidity and mortality. In the past twelve months twelve sanitation and water supply projects were supported by the Bank with lending of more than \$1 billion. Of these, four (two in Brazil and one each in Korea and Turkey) were specifically designed to strengthen the country's capacity for environmental management. In addition many urban, agricultural, and population projects contain water supply and sanitation components. In the China Southern Jiangsu Environmental Protection Project (see chapter 1), control of water pollution at industrial sources will reduce costs for water treatment and urban domestic water supply, and fewer water-borne diseases and the absence of toxic and hazardous wastes will improve health. Other fiscal 1993 projects also aimed to reduce water and sanitation problems.

- The India Karnataka Rural Water Supply and Environmental Sanitation Project is expected to benefit about 1,200 villages (about 4.8 million people), of which about 40 percent are below the poverty line. The project will include construction of new and rehabilitation of old water supply schemes, a program to monitor water quality, and measures for groundwater recharge; construction of environ-

mental sanitation facilities, including sullage drainage, pit latrines, washing platforms, and bathing cubicles; and communication of health issues to create greater community awareness of and demand for improved hygiene and environmental sanitation.

- The Indonesia Water and Sanitation for Low-Income Communities Project will benefit about 2 million people below the poverty line in more than 1,400 villages. The project includes constructing and rehabilitating water supply facilities and promoting low-cost sanitation facilities. Under the sanitation component local artisans will be shown how to build eight different fully subsidized latrine designs in homes. The project will also include hygiene and sanitation education.
- The Pakistan Second Karachi Water Supply and Sanitation Project will provide a more reliable and safer water supply for people of all income groups, especially the urban poor. The supply of potable water will be increased by strengthening measures to reduce loss and improving the management and organization of the area utility. Sanitation will be improved by increasing the coverage of sewerage services and treatment capacity.

Clarifying Property Rights of the Poor

There is growing evidence that private investment in environmental protection increases with secure tenure. The Bank is thus expanding its support to projects that provide security of tenure to poor farmers and urban squatters. During the past year two Bank projects supported the establishment of land information systems that provide the basis for allocating land. One of the main components of the Ghana Environmental Resources Management Project (discussed in chapter 1) will establish an environmental resources management system. This will help the government to develop a national environmental information and monitoring system, providing information on environmental quality, topography, land use, climate, land suitability, and land tenure. The land component of the Mozambique Rural Rehabilitation Project will provide information about land use that, in addition to helping to plan future infrastructure investments and guide the resettlement of returnees after the war, will support the development of land policies that provide security of tenure for small farmers. Box 3-2 describes an example of Bank involvement in a project including urban land tenure. Finally, in a slightly different example, the Chile Irrigation Development Project includes a component to regularize water rights in a project whose aim is to improve the operation and efficiency of irrigation schemes and improve the welfare of small farmers. It will also improve the allocation

Box 3-2. Participation and Land Tenure in Colombo

Most of Colombo's poor live in squatter shantytowns on low-lying lands, canal banks, and road and railway embankments and in areas prone to flooding. Many low-income communities obtain drinking water from common water standposts and use common toilets, oftentimes built along the banks of the canals. The land along the canal is marshy, absorbing rainwater and the wastewater generated within the area. This situation, combined with a lack of drains, means that shantytown residents faced flooding two or three times a year.

For the past ten years Colombo has had a shantytown and slum dwelling improvement program that includes allocation of land tenure. This initiative included improvements in sanitation and access to clean water and to grants and credit to help refurbish dwellings. Despite the creation of locally elected community development councils, however, the government was unable to persuade the local community to participate actively. As a result the areas remained in dire need of improvement.

During the past year the Bank has supported a "Clean Settlements" demonstration project in the Manning Town slum, as part of a Metropolitan Environmental Improvement Program (MEIP) for Colombo (chapter 1). The project promoted environmental improvement through community management, and participation was organized by a local NGO through the community development councils. The MEIP demonstration project enabled the councils to develop effective plans and goals for community organization and greatly improved access to clean water and sanitation.

A fiscal 1993 OED study of Manning Town and other slum and shantytown improvement programs found that tenurial rights and participatory approaches are essential but are, by themselves, insufficient. The residents of Manning Town acquired tenurial rights in the early 1980s, but environmental awareness programs, organization, and the available resources were needed before the full benefits of ownership could be exploited. Where either tenurial rights or participatory approaches did not exist, environmental degradation and poverty continued to be high.

and sustainability of irrigation investments and enable user groups and small farmers to better exploit their agricultural holdings.

In addition three studies completed this year have added greatly to our understanding of the issue of land tenure. *Common Property Resources: A Missing Dimension of Development Strategies* confirmed earlier findings that property held in common, by a village, for example, should not be confused with open access land. The former implies sustainable management by the community and attempts to assert individual tenurial rights to it can have seriously damaging effects. Another, *Power,*

Box 3-3. The World Bank's Energy Policy

Two energy policy papers were published in fiscal 1993.

Energy Efficiency and Conservation in the Developing World: The World Bank's Role formulates a strategy for Bank assistance to countries addressing the long-neglected issues of energy wastage in production and end use. The paper proposes that the Bank, in addition to continuing its efforts to promote energy efficiency and economically justified fuel switching, should follow a four-point program:

- Integrate energy efficiency issues better into its country policy dialogue so that they are addressed at an earlier stage
- Be more selective in lending to energy supply enterprises, avoiding those poorly performing ones whose governments are unwilling to carry out fundamental reforms
- Identify, support, and give high-level, in-country visibility to issues of demand management and end-use intermediation
- Give greater attention to the transfer of more energy-efficient and pollution-reducing technologies in its sector and project work.

The World Bank's Role in the Electric Power Sector: Policies for Effective Institutional, Regulatory, and Financial Reform focuses on the interrelated institutional, regulatory, and financial reform issues that are essential in improving the performance of power sectors. The paper notes that the Bank's evolving role in addressing the needs of the power sector in developing countries is a natural extension of the Bank's work on governance, public sector management, and ongoing structural adjustment reforms. It makes five main recommendations.

- All Bank lending for the power sector should require an explicit move by the borrower country toward establishing of a legal framework and regulatory process that is transparent, independent of power suppliers, and free from government interference.
- In countries with weak public and private sectors, undeveloped capital markets, and a relative lack of market forces, the Bank should help finance importation of power services to increase efficiency.
- The Bank should pursue the commercialization and corporatization of state-owned power utilities as necessary first steps in the process of restructuring and attracting the participation of the private sector.
- Bank lending for electric power should focus on countries with a clear commitment to improving sector performance.
- The Bank should use some of its financial resources to encourage private investment in the power sector by supporting the commercialization and corporatization of state-owned power utilities.

Distortions, Revolt, and Reform in Agricultural Land Relations, cautioned that the potential benefits for allocating rights to open land can disappear if economic and institutional distortions encourage accumulation of land by influential and wealthy individuals. The third, *Productivity Effects of Indigenous Land Tenure Systems in Sub-Saharan Africa*, confirmed this finding by ascertaining that, as a result of these distortions, land rights in parts of Sub-Saharan Africa do not produce the hoped-for improvements.

Promoting the Efficient Use of Resources

Promoting the efficient use of resources is the second broad mechanism whereby sound economic policies benefit the environment. Policies that encourage efficiency lead to less waste, less consumption of raw materials, and more technological innovation. This section briefly reviews recent Bank involvement in energy efficiency and conservation, pricing and subsidy reforms, and macroeconomic and trade issues as examples of such policies.

Improving Energy Efficiency and Conservation

An adequate energy supply is essential to development, and demand will grow rapidly—possibly doubling in the next 15 years—as populations and incomes grow in the developing world. Meeting this need in an environmentally sustainable manner will require improved efficiency of production and use of energy resources and promotion of resource conservation.

ENERGY EFFICIENCY. During the past year the Bank supported twenty-four energy sector loans, each of which included improved efficiency among its objectives. All loans in the sector require a careful assessment of the adequacy of institutional arrangements and price efficiency and seek to promote national pricing policies, improved institutional effectiveness, and greater transparency and accountability in the provision of energy. This emphasis is reflected in two policy papers for the energy sector published during the past year, which are described in box 3-3. In addition, policies for energy efficiency and conservation are often central features of adjustment lending, which is described in greater detail below.

In the past twelve months, the Bank supported its first freestanding renewable energy operation, the India Renewable Resources Development Project. Supported by a \$175 million IBRD/IDA loan and credit, the \$430 million project will finance forty-five mini-hydroelectric plants on

existing irrigation canals (for a total capacity of 110 megawatts). It also entails expansion of an existing plant to produce bagasse-based newsprint and has a \$30 million GEF component for reducing greenhouse emissions and developing solar photovoltaic plants and wind farms (see chapter 4 for discussion of the GEF component).

Since January 1992 the Bank, in conjunction with the U.S. Department of Energy, the government of the Netherlands, and other donors, has supported the Asia Alternative Energy Unit (ASTAE). ASTAE's goal is to integrate renewable energy and energy-efficient services into the design of energy strategies and into lending operations in the Asia region. Its primary concern is to prepare renewable energy components to incorporate into Bank-assisted lending operations. Other activities include designing and implementing alternative energy training programs for Bank staff and host country personnel, helping to formulate alternative energy policies, strengthening countries' institutional capabilities, collaborating with donor agencies, and mobilizing technical assistance funds in support of the work program. In less than eighteen months ASTAE has built an impressive track record. A core staff is in place, and, in addition to the India project mentioned above, its specific investment activities include the following:

- In Indonesia it is helping to prepare a renewable energy component of the proposed Second Rural Electrification Loan. This includes the design and use of a planning model that integrates renewable and traditional technologies in a least-cost rural electrification strategy and determines the optimal type and mix of renewable energy technologies for a given locale.
- In Sri Lanka it is helping to identify an alternative energy project that may contain both demand management and renewable energy components. These could include grid-connected, mini-hydroelectric and wind-power plants, as well as photovoltaic-powered household systems throughout the country.

Complementing its investment work, ASTAE is active in a broad range of technical assistance and training efforts. Moreover, with the German Gesellschaft für Technische Zusammenarbeit, it is conducting a series of case studies of experience with solar photovoltaic rural electrification in developing countries from which a best-practices guide will be drawn. Taken together, ASTAE's projects reflect the growing awareness that the clean, reliable, and increasingly cost-competitive characteristics of renewable energy technologies make them ideal candidates for displacing fossil and other conventional energy options in a variety of developing countries in the coming years.

The Energy Sector Management Assistance Program (ESMAP), begun in the early 1980s, is jointly sponsored by the UNDP and the World Bank. Its purpose is to help developing countries manage their energy sectors. In response to the Earth Summit, ESMAP will concentrate more on environmental issues, including an increased emphasis on natural gas development, alternative and renewable energy sources, energy efficiency, and transportation. It will also strengthen its institutional links to the GEF, NGOs, and the Bank's work by helping the energy sector to carry out reviews and analyses of rural and household energy issues. Examples of ESMAP activities in fiscal 1993 include its support for a review of energy and the environment in Indonesia, preparation of an energy environment strategy for Nepal, and elaboration of an energy country paper for Bolivia.

Further, the Bank is coordinating the development of an evaluation tool to measure the environmental impacts and costs of individual power projects and overall power programs. The "Environmental Manual for Power Development" will help decisionmakers select the best available alternatives from both an environmental and economic perspective. This computer software will help identify available environmental control options and measure potential trade-offs between economic costs and environmental impacts in order to optimize the design of power projects. The manual will also, among other things, enable evaluation of supply-versus demand-side management options and will be particularly useful for assessing environmental impacts in Eastern Europe and the countries of the former U.S.S.R.

ENERGY SUBSIDIES. A World Bank study published in April 1993, "World Fossil Fuel Subsidies and Global Carbon Emissions," estimates that developing countries spend more than \$230 billion annually on subsidizing energy, more than four times the total amount of development aid worldwide. The countries of the former U.S.S.R. and Eastern Europe account for the bulk of this amount (\$180 billion); it is estimated that more than half of their air pollution is attributable to these distortions. Removing all energy subsidies would produce large gains in efficiency and in fiscal balances and would sharply reduce local pollution and cut carbon emissions by as much as 20 percent in some countries and by about 9 percent worldwide. Similarly, electricity prices in developing countries are, on average, barely more than one-third of supply costs. As a result consumers use about 20 percent more electricity than they would if they paid the true costs of supply. Recent evidence shows, moreover, that far from correcting this distortion, many governments have been slow to adjust electricity tariffs to reflect higher costs from inflation, fuel, and interest charges. Thus, in research undertaken for the policy paper,

The World Bank's Role in the Electric Power Sector (described in box 3-3), a survey of electricity tariffs in sixty developing countries showed that average tariffs declined during 1979-88 from 5.2 to 3.8 cents per kilowatt hour (1986 U.S. dollars). This is particularly troubling because energy demands are expected to grow and will probably double in the next fifteen years. Achieving commercial pricing policies is, therefore, central to achieving energy efficiency and economic sustainability. Of the twenty-four energy and power sector loans approved in fiscal 1993, sixteen contained specific requirements to adjust energy prices. The following are examples.

- The Energy Sector Rehabilitation Project in Rwanda aims to promote rational energy policies while minimizing adverse environmental implications and to establish the basis for efficient use of Rwanda's energy resources. Among other things, the project will create a regulatory and policy environment favorable to private sector involvement. With this objective in mind, the government agreed to raise electricity (and water) tariffs in phases to levels that would remunerate the private utility operator, purchase energy and fuel, and cover the national holding company's operating expenses.
- In Bulgaria the objective of the Energy Project is to realign the level and structure of electricity tariffs to rationalize consumption, reduce imports, lessen the pollution associated with generation, and mobilize resources for the national electricity company. The project also aims to reorient the operations of the company along more commercial lines and to improve and depoliticize the system of setting tariffs by establishing an independent regulatory mechanism.

Eliminating Subsidies for Resource Use

Subsidies on energy are not the only form of policy-induced inefficiency, of course. Many natural resources are subsidized, leading to distorted investment decisions and removing competitive incentives to use them efficiently. Unfortunately, subsidies tend to create powerful beneficiaries who come to regard their subsidy as a right, creating challenging political and institutional obstacles to full cost pricing. For instance, an OED review of experience in urban water supply and sanitation projects between 1967 and 1989 found that borrowers often failed to comply with covenants, especially those on pricing and financial performance. Another OED review of completed irrigation projects found that the price of irrigation was often below full cost and was not fully recovered in 73

percent of the 107 projects surveyed. Nevertheless, removing subsidies can provide substantial economic and environmental benefits, as well as social benefits where funds used for subsidies support large-scale users of a resource and could be used to alleviate poverty more directly. These points are reiterated in the water policy paper, *Water Resources Management* (discussed in chapter 1), which stresses the importance of cost recovery and encourages better conservation and allocation of water resources.

Experience in the water and sanitation sector illustrates the limitations of direct government provision and indiscriminate subsidy of household services. Despite progress in developing affordable engineering solutions, the delivery and maintenance of services have been disappointing. Subsidies are often captured by the wealthier customers, and in most situations resources are inadequate to maintain a high quality of service or to extend facilities to low-income areas. Subsidies may be justified in specific situations (such as rural water supplies in low-income areas and sewage treatment in urban areas), but these are most effective when targeted and explicit. Thus seven out of the eleven water and sanitation projects approved by the Bank in the past year contained provisions for improved cost recovery.

The following fiscal 1993 projects illustrate the range of Bank projects that include pricing reform to reduce inefficient use of scarce natural resources.

- The Morocco Second Large-Scale Irrigation Improvement Project includes full cost recovery through water charges. In Morocco water losses between farm gate and crops are estimated at 30 to 40 percent. Most of the losses are from inefficient water management on farms due to low water charges for surface irrigation and poor collection of sprinkler irrigation fees. Water losses of this magnitude increase farm operating costs significantly and can lead to a buildup of soil salinity and groundwater pollution. The problem is aggravated by the growing imbalance between the supply of and demand for water in most of the country. Under the project, water charges would be raised so that the volume charge would cover the entire estimated operation and maintenance costs as well as a reasonable portion of depreciation costs and the land betterment levy.
- In the Zambia Marketing and Processing Infrastructure Project, one of the principal objectives is to restructure public expenditures for agriculture by eliminating subsidies for maize, fertilizer, and transport. Until November 1991 the government pursued an interventionist agricultural strategy, nationalizing maize mills, estab-

lishing parastatals and government-controlled cooperatives, regulating markets and prices, and giving out subsidies. The cost of this strategy, with its resulting distortions, has been substantial both in direct expenditure and forgone growth. The major benefits of the project will be increased agricultural production and improved efficiency in the production and supply of food, with an associated long-run reduction in the cost of food to both the rural and urban populations, a more secure food source for households, and higher incomes for farmers and rural enterprises.

- The Water Quality and Pollution Control Project in Brazil focuses on mostly urban water pollution and supply problems and will benefit a substantial portion of the 14 million people in the metropolitan areas of São Paulo and Parana. Full cost recovery and improved water quality will be achieved through a variety of instruments, primarily tariffs on sewerage services and water use charges but also park entry fees, increased property taxes and various forms of betterment fees, and a possible tax on pesticide use.
- In the Bursa Water and Sanitation Project in Turkey, improved cost recovery is a major objective. Here revised tariffs are intended to provide incentives for water conservation and the control and abatement of water pollution and to ensure the financial viability of the supply organization.
- Similarly, in the Changchun Water Supply and Environmental Project in China, the Bank is helping to formalize a policy linking water charges to the marginal cost of water and to improve the collection and treatment of liquid wastes from both industries and households.

Economywide Policies and the Environment

The impact of broadly based policy reform ("adjustment" policies) on the environment is currently of wide interest. To the extent that such policies promote economic stability, remove distortions, and improve the efficiency of resource use, they should benefit the environment; an inefficient economy is likely to be using the resources available to it unsustainably. However, the relations between economywide policy changes and the environment are complex, and not all economic reforms will benefit the environment. In addition, inasmuch as the reforms restore economic growth, without environmental policies, they may accelerate environmental damage. To address these issues, the Bank is currently developing a framework that connects adjustment-related, economywide reforms to basic patterns of resource use and environmen-

tal impacts. Preliminary results from examining a wide range of environmental problems in a variety of country situations provide evidence of the importance of sectoral and macroeconomic policies in influencing environmental behavior.

The analysis has helped to reconcile two different perspectives of significance in Bank operations. First, macroeconomic and sectoral decisionmakers, especially those involved in national economic planning in ministries of finance or planning or in key sectoral line ministries, need to know the likely impact of a specific policy on a range of environmental issues. For example, currency devaluation would significantly affect timber and crop export prices and therefore influence the rate of deforestation. Conversely, environmental policymakers, such as those in the environment ministries charged with preparing the NEAP, need to know which, among a wide range of economic policies, would have the most impact on the environmental issues addressed in the plan. For example, if urban air pollution is a major concern, then the NEAP should include a detailed review of policies such as energy pricing.

A series of twelve country case studies has been completed that explore the relations between macroeconomic policies supported in structural adjustment loans and their impact on the environment. The case studies examine adjustment reforms and forestry management in Bolivia; rural development policies and sustainable agriculture in China; the effects of macroeconomic policies on forestry and land use in Costa Rica; the effects of trade and labor market policies on agricultural extension in Ghana; water degradation and depletion in India; industrial promotion and pollution in Indonesia; fiscal policy and air pollution in Mexico; unemployment, poverty, and population pressure on forest lands in the Philippines; the implications of economic restructuring on energy use and pollution in Poland; the effects of national energy strategy and global climate-related constraints on the environment in Sri Lanka; agricultural pricing, subsidies, and livestock management in Tunisia; and economic policy and wildlife management in Zimbabwe.

Although each case study considers a country-specific situation, some patterns do emerge. They confirm the proposition that a program of economic liberalization will generally be beneficial, both economically and environmentally (box 3-4 gives an example in Zimbabwe). Where tradeoffs exist, the challenge is to design complementary environmental policies to mitigate the negative indirect effects and enhance the positive ones. Negative environmental effects are usually associated with old distortions and market failures, rather than with the new policies—for example, commodity prices may have been reformed, but long-standing underpricing of resource inputs or open access may continue to encourage them to be used wastefully and undermine the reforms (see the

Box 3-4. Implications for Wildlife Management of Economic Liberalization in Zimbabwe

Wildlife-based activities, such as ecotourism and safaris, contribute substantially to Zimbabwe's economy. Compared with ranching activities, with which they compete for limited land resources, these activities appear to be more suited to the semiarid climate and poor soils that characterize much of the countryside. The direct advantage is that economically viable systems can be maintained with lower stocking rates than those associated with commercial cattle ranching. Equally important is the indirect environmental benefit of conserving a natural habitat that appeals to visitors.

However, for many years foreign exchange and trade policies penalized this sector. As recently as 1990 the government budget represented 48 percent of GDP. This excessive government role in the economy crowded out private initiative and contributed to very low investment levels and productivity. Per capita incomes stagnated. From 1981 to 1990 the Zimbabwean dollar was overvalued by 50 to 80 percent. Foreign currency earnings had to be surrendered to the government in exchange for much less of the local currency than would have been available in a more open system. This meant that export-oriented sectors were implicitly taxed, among them wildlife and ecotourism concerns. Foreign exchange earnings from wildlife were diverted to other sectors, depressing incomes and investment. When surveyed, safari operators reported that they could not get the necessary foreign exchange for equipment and parts and for maintaining the level of accommodations required by foreign tourists.

Adjustment reforms introduced in 1990 reduced local currency overvaluation to 25 percent, and more liberal access to foreign exchange was allowed. This meant that the private profitability of wildlife management increased, and the percentage of land allocated for wildlife use has since expanded. Because more lands are being allocated to wildlife use, this trade-oriented reform has also promoted a shift to more environmentally benign activities.

Ghana case in box 3-5). Finally, one clear message is that environmental problems and their solutions tend to be location-specific and depend heavily on economic policies at the sector and macroeconomic levels. Thus sound environmental management will depend on conscious efforts to integrate environmental concerns into economic policymaking.

The findings of the first phase of this work will be summarized in an overview report for the Bank's Board of Directors in spring 1994 and presented in greater detail in a best-practice volume. A proposed second phase of the study would involve a smaller number of more detailed case

studies that would build upon the analytical and practical lessons learned from Phase I.

A companion study, prepared for a February 1993 workshop of the Committee of International Development Institutions on the Environment, explored the extent to which environmental concerns are explicitly included in adjustment operations. It concluded that, of the fifty-eight countries surveyed, thirty-five have adjustment programs that include environmental goals or loan conditionalities addressing environmental concerns. Among these was the Honduras Energy Sector Adjustment loan, which includes major environmental objectives within the framework of its ongoing structural adjustment program and energy sector reforms. As conditions of the loan, investment and operational guidelines will include measures for basic environmental protection in energy sector activities, and the National Energy Commission, which is set up under the project, will ensure that all activities in the energy sector take account of environmental protection. Technical assistance will also be

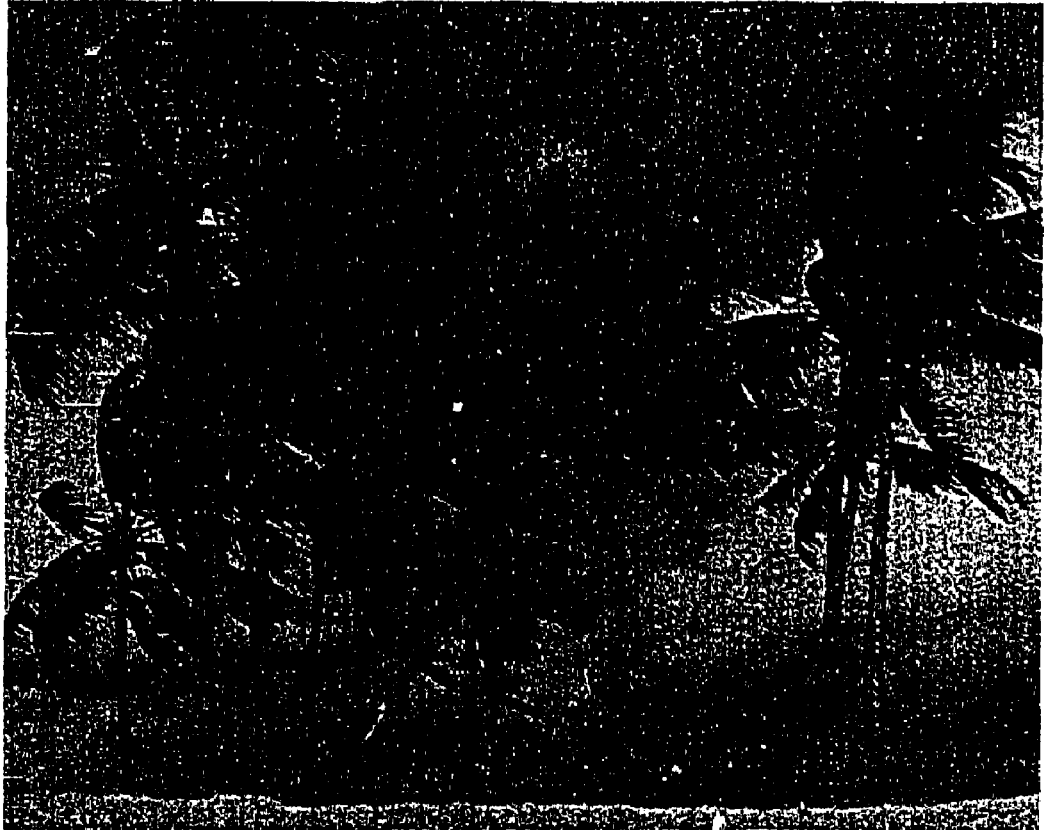
Box 3-5. Trade Reforms and Agricultural Extensification in Ghana

Deforestation and soil erosion have been identified as key factors underlying the decline of agricultural productivity in many developing countries. In western Ghana, as in many regions in Africa, agricultural lands are governed by traditional land use institutions, where farms are communally owned by the village or tribe. These common property regimes allowed agricultural lands to be used sustainably when populations were much smaller and lengthy fallow periods enabled the land to regain its fertility. However, rapid population growth and lack of employment opportunities outside the rural sector have now increased the pressure on land resources.

Under these conditions, a rise in domestic agricultural prices, associated with the trade reforms undertaken in Ghana has accomplished the expected goal of increasing rural output. However, cultivated areas have also expanded, fallowing has been reduced, and consequently the fertility and productivity of the land have declined. Explicitly incorporating the effect of this environmental change reduces the otherwise substantial positive effect of the reform on agricultural output. In this case, complementary efforts to promote better agricultural land management, such as improving tenure and providing extension services, will be needed to ensure that current production gains will be sustainable.

provided to the National Power Company to strengthen internal capacity to address environmental concerns.

The study further identified nine countries with explicit components to secure land tenure or titling as an incentive for soil conservation; land taxation, rent appropriation, and lease duration measures were adopted in four countries for land management purposes; and appropriate land protection measures were identified in twelve countries. Competitive bidding and long-term concession reforms were found in four countries with a history of unsustainable logging practices, and pricing, taxation, royalty, or concession rent policies were seen in seven countries. Other measures targeted at forest management were found in fourteen countries.



GRAEME THOMPSON

Global warming is a particular threat to small island countries, such as Kiribati, at risk from rising sea levels. The Global Environment Facility has nearly \$300 million allocated to projects that will help countries reduce greenhouse gas emissions that foster global warming.

4. Addressing Global Environmental Challenges

Damage to global resources and ecological processes like biodiversity, stratospheric ozone, and the carbon cycle threaten the economic, social, and environmental well-being of all countries. Biodiversity loss, for example, destroys genetic resources of relatively unknown but potentially significant scientific, medicinal, and ecological value. Although the precise impacts on the global environment remain uncertain, evidence increasingly suggests they could be large and irreversible. Last year's successful negotiation of the Climate Change Convention and the Biodiversity Convention—and their signing by more than 150 countries at the Earth Summit—testifies to the seriousness with which the international community has resolved to address global environmental problems. The risk to developing countries from—and their contribution to—degradation of the global commons places the global environment firmly within the scope of the Bank's mandate.

The Bank addresses global environmental concerns through a variety of channels, the most concrete of which is the GEF. As one of its three implementing agencies during the pilot phase, the Bank administers and chairs the GEF, acts as trustee for its funds, and is responsible for managing its portfolio of investment projects, many of which are cofinanced with Bank operations. In addition the Bank has played, and will continue to play, an important independent role in helping developing countries address global environmental concerns. Bank-supported projects and policies increasingly incorporate global as well as national benefits; Bank research explores cost-effective means to protect the global environment and examines links between its degradation and country-level practices; and Bank technical assistance provides input to international, regional, and national strategies for addressing global environmental problems. These roles are discussed in the first section of this chapter. A second section details GEF activities.

The Bank and the Global Environment

Because of the Bank's general commitment to promoting sustainability and to assisting borrowers in meeting their obligations under the Rio conventions, many of this year's activities listed in earlier chapters also help to realize substantial global environmental benefits.

National Activities with Global Payoffs

Bank efforts to remedy environmental problems at the national and local levels increasingly provide global environmental benefits. Instances of Bank lending, policy dialogue, technical assistance, and research that are directed primarily at individual countries but that also have global environmental payoffs are presented below.

LENDING OPERATIONS. Several forest management projects incorporate global as well as national objectives. For example, the preservation of biodiversity is an important component of a forest management loan this year to Gabon. By reducing deforestation, this and other Bank-supported operations also help to regulate global climatic patterns through evapotranspiration and carbon sequestration.

Renewable energy and pollution control projects reduce emissions of greenhouse gases, such as carbon dioxide. India's Renewable Resources Development Project will generate 110 megawatts of electricity using the hydropower potential of existing irrigation dams, and Mexico's Transport Air Quality Management Project will drastically reduce emissions of greenhouse gases and ozone-depleting substances from cars and other vehicles in the Mexico City metropolitan area.

Measures to improve energy efficiency—particularly pricing and institutional reforms—result in energy services being delivered with a reduction in energy consumption and hence in greenhouse gas emissions. Such measures are central to all Bank operations in the energy sector, such as recent loans to Jamaica and Pakistan. Several structural adjustment loans—for example, to Chile and Mexico—include similar reforms in the energy sector.

POLICY DIALOGUE AND TECHNICAL ASSISTANCE. NEAPs—many of which are carried out with Bank technical support—incorporate global environmental considerations. Biodiversity issues, for example, are prioritized and incorporated into the design and implementation of a country's NEAP.

The Bank's new four-part energy efficiency and conservation strategy (discussed in chapter 3), which is designed to help developing countries

meet their energy needs by promoting least-cost production and end-use efficiency, provides a cost-effective framework for addressing global as well as national environmental concerns. During the past year, the Energy Sector Management Assistance Program has given increasing attention to global environmental issues; technical assistance for renewable and alternative sources of energy, for example, is now an important activity.

Ongoing revision of the Bank's industrial pollution guidelines will promote cleaner production technologies. This in turn will help to minimize the generation of wastes that have a global impact, such as greenhouse gases and ozone-depleting substances, as well as untreated effluent discharges that damage marine and freshwater ecosystems.

Recognizing that the global externalities from maintaining tropical forests intact cannot be measured with accuracy but are potentially substantial, the Bank's new forestry policy directive stipulates that the Bank will not finance commercial logging operations in primary tropical moist forest. In other forest areas of high ecological value, the policy limits financing to controlled sustained-yield management that considers global environmental benefits such as biological diversity and carbon sequestration.

Regional strategy papers—such as those outlining forestry and air pollution strategies for the Asia region—identify means to counter environmental degradation at the global as well as regional and national levels.

RESEARCH. The Bank's extensive valuation research agenda explores ways to systematically and cost-effectively incorporate global environmental externalities into project and policy analysis. Analysis of the costs and benefits of greenhouse gas abatement through instruments such as carbon taxes and subsidy elimination has been a particular focus of activity.

Various studies undertaken or completed in fiscal 1993 investigated country- and region-specific causes and costs of the degradation of the global environment. For example, an energy conservation study in China identifies efficiency measures as among the most important means of alleviating China's worsening problem of greenhouse gas emissions, and an economic study of Pacific Island states examines their vulnerability to a change in climate and a possible rise in sea level.

Several global environmental research findings reinforce national economic, social, and environmental imperatives. For example, reducing population growth through increased education of girls has recently been shown to be cost-effective not only in reaching national goals but also in reducing greenhouse gases. Reducing carbon emissions through

a carbon tax is more than twice—and possibly as much as four times—as expensive as reducing those emissions by lowering the birthrate through increased spending on female education.

Key Activities for the Global Environment

In addition to global benefits gained from national-level efforts, the Bank is engaged in many activities oriented specifically toward global environmental concerns. These activities primarily focus on four issues: ozone depletion, climate change, biodiversity, and desertification.

OZONE DEPLETION. In 1987 the Montreal Protocol set schedules for reducing consumption of two groups of ozone-depleting substances (ODSs), chlorofluorocarbons (CFCs), and halons. As an implementing agency of the Montreal Protocol's Multilateral Fund, which provides concessional finance and grants to help developing countries phase out all ODSs by 2010, the Bank supports a growing number of ODS-reduction projects. Following the tenth meeting of the fund's executive committee in June 1993, the Bank's portfolio of investment operations financed by the fund totaled nearly \$70 million; projects with tentative executive committee authorization add a further \$18 million. There are now seventeen separate investment operations, of which seven have been committed and four are currently being disbursed.

Some specific Bank-supported actions should be highlighted.

- A Montreal Protocol investment project grant agreement for Plásticos Molancos in Venezuela to reduce production of CFCs was signed in April 1993. Project implementation is expected to be completed within six months, thereby eliminating 200 metric tons of ODSs annually.
- The Bank is working with the Chinese National Environmental Protection Agency to prepare one of the largest projects under the fund for phasing out emissions of ODSs.
- With Bank technical assistance, Mexico is testing the potential of tradeable ODS emission permits. The first country to ratify the protocol, Mexico aims to phase out CFC production twice as fast as the agreed-upon schedule for developing countries.
- Preparatory work to reduce ODSs is under way in several other borrowing countries, including Brazil, Chile, India, Lao People's Democratic Republic, Malaysia, Philippines, Thailand, and Venezuela. Eventually, the Bank anticipates supporting Montreal Protocol investments in at least twenty-five countries. In addition a substantial portfolio of similar investments in Eastern Europe and

the former Soviet Republics is expected to be funded through the GEF.

- In June 1993 the Bank, as an implementing agency of the Montreal Protocol, presented a seminar on incremental cost for the European Community. This covered operational interpretation and discussion of four case studies to illustrate application of incremental cost concepts to the reduction of ODS.

Meanwhile the Bank continues to pursue new ways of accelerating the preparation of Montreal Protocol projects, including in particular a "line-of-grants" approach, which would encourage more efficient processing of the many relatively small subprojects characteristic of protocol activities. In addition this past year has seen a sharpened focus on the operational requirements of the Bank as an implementing agency of the multilateral fund. Guidelines for selecting and financing Bank projects under the protocol have been developed. This has led the Bank to initiate and implement measures to streamline protocol operations. A sourcebook on unit abatement costs that allows Bank task managers to calculate the incremental costs of ODS-reduction projects has also been prepared. Cost questions have been further examined in a ten-country review of ODS phase-out practices, which is designed to identify best practice and provide methodological inputs to climate change cost analysis.

GLOBAL CLIMATE CHANGE. Research initiatives designed to establish cost-effective strategies to reduce greenhouse gas emissions have been pursued during the past twelve months.

- A cost-benefit analysis of global and local forest services examines the potential for trade in global greenhouse gas reduction between industrial countries and Amazonia. This approach would serve several goals: income transfers from North to South, income redistribution to poorer frontier areas within southern countries, and provision of cost-effective carbon sequestration while yielding biodiversity and ecosystem benefits.
- An important paper that came out early in the fiscal year, "Global Warming: Key Issues for the Bank," reviewed issues affecting the Bank's operational response to global warming: incremental and joint costs, efficiency and country strategy issues, and the design of international financing mechanisms. Highlighting the pervasive, accumulative, and transboundary aspects of global warming, the study examines the efficiency and equity implications of different responses to the problem. Other research reviews current and

- historical greenhouse gas emissions; examine alternative methods of sharing emission reductions among countries and regions; and evaluate the quantitative implications of alternative allocation and reduction criteria, particularly from a "North-South" perspective.
- The GEF's ongoing analysis of the incremental costs of meeting global environmental benefits (see the discussion of the PRINCE program below) has been supported by Bank-financed research and technical inputs, including the preparation of databases on the costs and emissions of different energy technologies and the application of alternative interpretations of incremental cost concepts to emissions abatement through nonforest biomass production.

CONSERVATION OF BIOLOGICAL DIVERSITY. At the Earth Summit 157 countries signed a landmark international agreement—the Biodiversity Convention—to conserve biological diversity, to protect and sustain ecosystems, and to ensure that benefits from the use of genetic resources are appropriately shared. To help countries comply with their commitments under the terms of the convention, the Bank actively promotes conservation in developing countries and facilitates the transfer of technology and financial resources for this purpose.

As noted above, a considerable quantity of Bank work designed to foster national development also has global benefits, particularly regarding the conservation of biological diversity. These activities are now buttressed by a growing number of initiatives specifically designed to address biodiversity concerns directly and to evolve Bank and borrower practice from a reactive, project-by-project perspective toward broader, more proactive biodiversity work programs at the national and regional levels. There are several areas of activity.

- *Bank lending for biodiversity* continues to expand in addition to its efforts to assist countries through the GEF. Projects approved this year in Chile and Venezuela, in particular, emphasize strengthening country institutional capacity to manage resources and conserve biodiversity, and projects in Egypt and the Seychelles include components to protect biodiversity. Overall the Bank's active lending portfolio includes more than 100 projects with biodiversity components that are being prepared or implemented in all geographic regions of the Bank's work.
- *Regional biodiversity conservation strategies* have been, or are being, prepared for the Asia and Pacific, Latin America and the Caribbean, and Africa regions. These strategies survey the rate of biodiversity loss; determine priorities for conservation, including establishing and maintaining protected areas; review the design of biodiversity

components in project lending; identify future Bank and GEF biodiversity projects; and facilitate the mobilization and coordination of financial resources. (Box 4-1 details the strategies for Asia and Latin America.) Studies in Costa Rica and Argentina also include strategies for biodiversity conservation and for the protection of other global and local environmental resources.

- *National biodiversity action plans* assist in investment planning and donor coordination and are required under the terms of the Biodiversity Convention. In fiscal 1993 Indonesia's plan was completed with Bank technical assistance and is now being implemented. One of the first to be completed, the plan identifies national conservation priorities and is likely to serve as a model for other countries. Other Bank member countries are currently carrying out biodiversity studies that will inform their preparation of national action plans.
- *The Pilot Program to Conserve the Brazilian Rain Forest*, a collaboration between the Bank and the government of Brazil, was initiated by the G-7 member countries in 1992 with the creation of the Rain Forest Trust Fund. Administered and coordinated by the Bank, the program is funded by a group of donors comprised of Canada, France, Germany, Italy, Japan, the Netherlands, the United Kingdom, the United States, and the Commission of the European Communities. The program supports an integrated set of projects designed to reduce the rate of deforestation in Brazil's rain forests in a manner consistent with sustainable development of the area's natural and human resources. Twelve projects are currently being prepared by Brazilian project teams. To date some \$280 million has been pledged in financial and technical assistance; \$58 million of this total has been pledged to the Rain Forest Trust Fund under World Bank trusteeship.
- *The Global Marine Biodiversity Conservation Strategy* has recently completed—in collaboration with the World Conservation Union—the first phase of an inventory of global marine biodiversity designed to identify key areas for protection; an ongoing second-phase focuses on marine biodiversity in Southeast Asia and the Caribbean. Under the strategy the criteria for selecting the project site are economic feasibility and environmental sustainability. Research into existing marine protected areas carried out during the fiscal year indicates that for such projects to be sustainable, incentive structures must be established to direct a large share of revenues generated by tourism back into the local economy.
- *The Bank/NGO Forum on Biodiversity Conservation* continues to inform Bank policy, programs, and investment priorities. The forum

Box 4-1. Conserving Biodiversity in the Asia-Pacific and Latin America and the Caribbean Regions

Loss of biological diversity through the extinction of species, the conversion and degradation of natural habitats, and the disruption of ecological processes is occurring throughout the world at unprecedented rates. As species and their habitats disappear, so do products with present and future value, genes with which to improve crop varieties and livestock, and the natural resiliencies of the world's living resources to respond to climatic and environmental change. Recognizing this, the Bank has completed or is preparing regional biodiversity conservation strategies that will help develop future Bank and GEF projects.

The Asia-Pacific strategy paper, *Conserving Biological Diversity: A Strategy for Protected Areas in the Asia-Pacific Region*, surveys the rate and range at which biodiversity is being lost in the region and strategies by which these losses might be controlled. The paper argues that setting up comprehensive and well-managed protected area systems is likely to be the most practical way to conserve the greatest amount of the region's biodiversity and protect its ecological processes. For this reason, it is suggested that initial efforts support the establishment and maintenance of protected area systems by promoting policy changes; strengthening institutions, particularly in staff training and deployment; and including local people and governments and national and international NGOs in managing protected areas. Financial resources must also be mobilized to sustain the management of protected areas. A first step in translating the strategy for Asia into action was the Second Asia-Pacific Consultative Meeting on Biodiversity Conservation, held in Thailand in February 1993.

In Latin America and the Caribbean, the Bank is putting together a regional biodiversity conservation strategy based on a methodology that divides the region into approximately 100 "ecoregions." These will be ranked in order of priority for conservation on the basis of degree of threat and feasibility of Bank financing. The strategy and information compiled for its development will help identify and design future GEF proposals and Bank-financed projects—particularly with respect to site selection—and also will improve the technical quality of Bank environmental assessments of projects in the region. The strategy will provide valuable input to the countries and NGOs in their conservation and development planning.

has evolved from an informal biodiversity network within the Bank into a regular gathering of NGOs, government agencies, and intergovernmental institutions to discuss policy and issues surrounding biodiversity conservation. Participants in these discussions have included Conservation International, the Center for Marine Conservation, the Inter-American Development Bank, the

Nature Conservancy, the Organization of American States, the Smithsonian Institution, the UNDP, the UNEP, the U.S. Agency for International Development, the World Conservation Union, the World Resources Institute, the World Wildlife Fund, the World Conservation Union, the World Resources Institute, and the World Wildlife Fund.

DESERTIFICATION CONVENTION. At the 1992 session of the General Assembly of the United Nations (UN), it was agreed to establish an Intergovernmental Committee to Negotiate an International Convention to Combat Desertification. The focus of the convention will be to bring international action and resources to bear on the problem of desertification. The Bank participated in the first meeting of the committee, held in late May 1993, which was attended by eighty-eight countries, (thirty-one from Africa), many of the UN organizations and specialized agencies, regional intergovernmental organizations, and 43 of the 173 NGOs accredited to the meeting. Delegates stressed the need to establish, as part of the convention, mechanisms for monitoring and assessment, information dissemination, research and technology development, and public awareness and education on desertification and drought-relief issues.

The Global Environment Facility

The GEF has emerged as an important catalyst in helping to integrate global environmental concerns into national development goals. It enables governments of developing countries to address issues on the global environmental front that they would otherwise be unable or unwilling to undertake. In doing so, the GEF demonstrates a new mechanism for global cooperation and reflects the willingness of the world's wealthier states to safeguard the inheritance of future generations and to help developing countries mitigate their growing contribution to global environmental degradation as population pressures combine with industrialization and urbanization. Developing countries, meanwhile, have come increasingly to recognize that thinking globally does not mean shelving local and national concerns. Even though the GEF enables developing countries to take actions they could otherwise not afford, most GEF projects bring substantial national as well as global benefits.

At the Earth Summit, world leaders agreed that environmental problems could be addressed only through a worldwide partnership. As part of this partnership, the summit endorsed the GEF as a source of additional grant and concessional funding to achieve global environmental bene-

fits. In addition the GEF was designated as the interim funding mechanism for both the Climate Change Convention and the Biodiversity Convention. In preparation for meeting its expanded responsibilities, the GEF is moving forward on three critical fronts: restructuring to make it transparent and accountable, replenishing its financial resources, and evaluating its three-year pilot phase. While the details of the facility's link to the conventions can only be finalized once the conventions enter into force (probably in mid-1994), close working relations are being established with the secretariats of the conventions.

The Pilot Phase

The GEF was conceived as an experimental program and established in November 1990 with \$1.3 billion (1990 dollars) to provide grants and concessional funds during a three-year pilot phase. Its current mandate is to provide these funds to developing countries for investment projects, technical assistance, and, to a lesser extent, research, all aimed at protecting the global environment, as distinct from the national environment. GEF funds are in addition to regular development assistance, often working in concert with bilateral and multilateral efforts on the local, regional, and national levels.

The GEF helps developing countries to address four global environmental problems:

- Global warming, particularly the effects on the world's climate from greenhouse gas emissions resulting from the use of fossil fuels and the destruction of carbon-absorbing forests
- Destruction of biological diversity through the degradation of natural habitats and the overuse of natural resources
- Pollution of international waters through, for example, oil spills and the accumulation of wastes in oceans and international river systems
- The depletion of stratospheric ozone from emissions of CFCs, halons, and other gases.

During the pilot phase the fourth objective above has been addressed almost entirely through the Montreal Protocol, for which the Bank manages the investment operations. However, in the operational phase the GEF will support the phase-out of ODSs in countries, such as the Commonwealth of Independent States and Eastern European states, which are ineligible for protocol assistance. The scope of the GEF will be expanded, in light of agreements reached at the Earth Summit, to cover

land degradation—primarily deforestation and desertification—as it relates to the four focal areas of the pilot phase.

Institutionally, the GEF may be a harbinger of broader interagency cooperation designed to marshal the best available skills without setting up new bureaucracies. The GEF draws collaboratively on the experience and expertise of three existing international agencies: the UNEP, the UNDP, and the World Bank. The UNDP is responsible for technical, operational, and capacity-building activities and is charged with managing the Small Grants Programme for NGOs. The UNEP provides the secretariat for the Scientific and Technical Advisory Panel, offers environmental expertise for the facility, and supports research and information dissemination. The World Bank chairs and administers the pilot facility, manages the trust fund, and is responsible for investment projects.

Country participation in the GEF is growing, and the number of participants is expected to increase rapidly as the facility moves toward its goal of universal membership. In June 1993 sixty-four countries were participants in the GEF, nearly triple the twenty-four that were present when it was established in March 1991. More than sixty countries attended the Fifth Participants' Meeting in Beijing in May 1993.

Resources for the Pilot Phase

Funds for the pilot phase are supplied from two distinct sources: the Global Environment Trust Fund—the “core fund,” which has some \$813 million in resources—and several associated cofinancing and parallel financing arrangements that provide some \$400 million, available on grant or highly concessionary terms. As of June 30, 1993, twenty-eight countries, including twelve in the developing world, had pledged to the core fund.¹ In addition to their contributions to the core fund, Belgium, Canada, Japan, Norway, and Switzerland have separate cofinancing arrangements. Australia and the United States have not contributed to the core fund, but Australia has established cofinancing arrangements on grant terms, and the United States has established a system of parallel financing for GEF-type projects.

As of June 1993, \$727 million had been committed for 113 projects in the first five tranches of the pilot phase. These include projects that have been endorsed or are being implemented by the three implementing agencies. This breaks down into \$468 million for fifty-three investment projects managed by the World Bank,² \$242 million for fifty-five UNDP technical assistance and research projects, and \$17 million for five projects to support the objectives of the Biodiversity and Climate Change conventions, under the purview of UNEP. At the end of June 1993, of the 113 projects in the first five tranches, 32 projects, totaling some \$250

million, had been approved for implementation by the responsible agencies.

As the GEF enters the final stretch of its demonstration phase, the three implementing agencies are making a determined effort to balance the portfolio—in its geographic spread and across the four focal areas—to maximize experience that can be brought to bear in the operational phase of the GEF. Tables 4-1 and 4-2 break down the allocation of core fund resources and the number of projects in the GEF portfolio by region and sector at the end of June 1993.

Of the resources from the core fund, a regional breakdown in the first five tranches shows that 33 percent of the funds allocated to date are for projects in Asia, 22 percent in Latin America and the Caribbean, 20 percent in Africa, and 19 percent in the Arab states and central Europe. The remaining 6 percent goes to global and interregional projects.

Similarly, in the first five tranches, 42 percent of resources from the core fund has been earmarked for biodiversity projects, 40 percent for combating global warming, 17 percent for protecting international waters, and 1 percent for controlling emissions of ODSS. This brings the portfolio to a thematic balance nearly in line with initial objectives of 40 to 50 percent for global warming, 30 to 40 percent for biodiversity, and 10 to 20 percent for international waters, with the rest dedicated to ozone depletion projects. Most projects to phase out ODSS in developing countries are funded through the Montreal Protocol Multilateral Fund. This accounts for the fact that the number of ozone projects is small so far. It is likely to grow as demand grows in eastern and central Europe and in countries of the former U.S.S.R., which are not eligible for funds from the Montreal Protocol.

Table 4-1. Allocation of Resources in the GEF Work Program, Tranches I-V
(millions of dollars)

<i>Thematic focus</i>	<i>Area of focus</i>				<i>Global</i>	<i>Total</i>	<i>Percent</i>
	<i>Africa</i>	<i>Asia</i>	<i>Arab States and Europe</i>	<i>Latin America and the Caribbean</i>			
Biodiversity	76.2	75.1	31.6	107.8	12.8	303.5	42
Global warming	55.0	128.5	55.2	29.9	27.4	296.0	40
International waters	16.0	38.0	45.8	19.5	2.6	121.9	17
Ozone	0.0	0.0	3.8	1.9	0.0	5.7	1
Total	147.2	241.6	136.4	159.1	42.8	727.1	100
Percentage	20	33	19	22	6	100	

Table 4-2. Project Distribution in the GEF Work Program, Tranches I-V
(number of projects)

<i>Thematic focus</i>	<i>Area of focus</i>				<i>Global</i>	<i>Total</i>	<i>Percent</i>
	<i>Africa</i>	<i>Asia</i>	<i>Arab States and Europe</i>	<i>Latin America and the Caribbean</i>			
Biodiversity	17	11	8	14	4	54	48
Global warming	10	11	8	7	7	43	38
International waters	2	2	7	2	1	14	12
Ozone	0	0	1	1	0	2	2
Total	29	24	24	24	12	113	100
Percentage	26	21	21	28	11	100	

Although each project is categorized among the GEF's four areas of focus, several projects provide for global benefits in more than one area. For instance protecting tropical rain forest will also provide climatic services by sequestering atmospheric carbon. Similarly, projects focused on protecting international waters also serve to protect aquatic ecosystems, often fragile reef systems, in turn conserving marine biological diversity and ecosystem processes.

The wide diversity of GEF projects owes a great deal to the Scientific and Technical Advisory Panel (STAP), the independent international group of fifteen scientists whose main task has been to draw up the scientific and technical criteria and priorities for selecting projects in the pilot phase. The STAP is now developing analytical frameworks for prioritizing projects in each of the four focal areas in the operational phase, although in the global warming and biodiversity fields, the parties to the respective conventions will have primacy to determine eligibility and priorities. Greater emphasis will be placed on the broader policy context in which projects are implemented, with particular attention to the cost-effectiveness of projects and the distinction between national and global benefits.

Investment Lending

In the past twelve months the Bank approved nine GEF investment projects, totaling \$70 million, bringing to fifteen the total number of investment projects approved by the Bank under the pilot phase. An additional thirty-eight investment projects are in the pipeline following endorsement by the participants. These nine include two climate change

projects (in India and Thailand) for \$35.5 million; five biodiversity projects (in Belarus, Bolivia, People's Republic of the Congo, Ghana, and Turkey) for \$27.8 million; and two international waters projects (in Egypt and the Seychelles), which also have significant focus on preserving biodiversity, for \$6.6 million (table 4-3).³ Six of these investment projects are associated with World Bank projects operating at the national level.

GLOBAL WARMING. The main theme emerging in the global warming portfolio is the demonstration of advanced and innovative approaches to mitigating greenhouse gas emissions. The mix of projects blends renewable energy technologies with fuel shifts and demand-side management—offering low-cost solutions for reducing greenhouse gas emissions.

The GEF's portfolio on renewable energy features commitments to promising backstop technologies such as photovoltaics in Zimbabwe, gasification of woody and crop residue biomass coupled with advanced gas turbines in Brazil, and anaerobic digestion of organic residues from

Table 4-3. GEF Investment Lending, Fiscal 1993
(millions of dollars)

<i>Country</i>	<i>GEF component</i>	<i>Bank associated project</i>	<i>Grant</i>
Belarus	Forest Biodiversity Protection	Freestanding	1.0
Bolivia	Biodiversity Conservation	Freestanding	4.5
Congo	Wildlands Protection and Management	Freestanding	10.0
Egypt	Red Sea Coastal and Marine Resource Management	Private Sector Tourism, Infrastructure, and Environment	4.8
Ghana	Coastal Wetlands Management	Environmental Resources Management	7.2
India	Alternate Energy	Renewable Resources Development	26.0
Seychelles	Biodiversity Conservation and Marine Pollution Abatement	Environment and Transport	1.8
Thailand	Promotion of Electricity Energy Efficiency	Distribution System and Energy Efficiency	9.5
Turkey	In Situ Conservation of Genetic Biodiversity	Eastern Anatolia Watershed Rehabilitation	5.1
Total			69.9

agroindustry and urban households in India and Pakistan. As part of the government's strategy for expanding India's energy supply, the **India Alternate Energy Project** supports the development of renewable and indigenous energy systems in the form of wind farms and solar photovoltaic power for rural lighting, water pumping, and rural community services. The project aims to accelerate the commercialization of these renewable energy technologies globally, to relieve India's traditional reliance on kerosene lighting and small diesel sets for motive and electric power, and to help meet the decentralized energy needs of the rural sector. The project will displace the equivalent of about 100 megawatts of conventional capacity based on fossil fuels, reducing emissions of carbon dioxide at an estimated cost of \$30 to \$45 a ton. True to an important design criterion of the GEF, this project catalyzes mobilization of more than \$150 million of additional private sector and donor resources for GEF-supported projects, creating the largest project of its kind in the developing countries.

Energy efficiency and the testing of alternative technologies are other areas of concentrated focus in the portfolio of projects concerned with global warming. The **Thailand Promotion of Electricity Energy Efficiency Project** aims primarily to demonstrate specific energy efficiency technologies and to adopt a comprehensive and integrated approach to demand management based on experience in industrial countries. The GEF contribution of \$15.5 million leverages \$186 million of Thai funds as well as \$25 million of Japanese and \$6 million of Australian GEF cofinancing, in addition to Bank loan funds. The project will pioneer comprehensive monitoring and evaluation for demand-side management projects in developing countries. Without the GEF project Thailand's efforts at demand management would have been more limited in scale, scope, and innovation. The GEF component focuses on improved household lighting and refrigeration, high-efficiency electric motors in the industrial sector, and passive energy efficiency design features such as low emissivity glass in commercial buildings, all with matching policies, regulations, and incentives to enable effective implementation. The resulting electricity conservation in Thailand could reduce carbon dioxide emissions by as much as 15 million tons a year during the next decade.

Less well developed in the portfolio, and perhaps most difficult to do well, is carbon sequestration. Nevertheless the World Bank and the UNDP continue to work on specific carbon sequestration projects and generic designs with the governments of Cameroon, Guinea, and Malaysia. Carbon sequestration also features in the afforestation investment project being developed in Mali and is implicit in all forest biodiversity conservation projects, such as the **Congo Wildlands Protection and Management Project** discussed below.

In mid-1992 the government of Norway requested the Bank's collaboration in demonstrating joint arrangements to reduce global greenhouse gas emissions through international trade. With the benefit of about \$4.5 million in cofinancing from Norway, the Mexico High Efficiency Lighting Project and the Poland Coal-to-Gas Conversion Project are being expanded to simulate joint implementation arrangements between Norway and these countries. The assistance from the Norwegian government also provides for identifying and elaborating the issues associated with implementation arrangements and carbon offset generation and trade.

To improve the analysis of global benefits and cost-effectiveness in global warming projects, the Bank has undertaken a review of methodologies for estimating reductions in greenhouse gas emissions in its GEF global warming portfolio. Methods and analytical standards derived from this review will be applied to future Bank GEF global warming projects and are available for wider audiences. One application is to certify for potential investors in atmospheric carbon reduction—or carbon offsets—the estimated and actual reductions in atmospheric carbon from specific interventions.

BIODIVERSITY. GEF biodiversity projects support land management for conservation efforts in all major biomes in every region of the developing world, with emphasis on consultation and sustainable use. The challenge now facing the GEF and its participants is to provide the kind of incentives that will induce behavior that protects biodiversity in terrestrial and aquatic ecosystems while at the same time enabling communities dependent on natural resources to make a living in a sustainable way.

During the course of the pilot phase certain cross-cutting issues have emerged: the central importance of engaging local communities and indigenous peoples as partners and stakeholders in designing and implementing projects, the need for a stable supply of recurrent cost financing, and the development of local capacity to identify and sustain externally funded initiatives in line with national priorities and development plans. The biodiversity portfolio provides considerable coverage of these issues. Projects approved in fiscal 1993 in Belarus, Bolivia, the Congo, Ghana, and Turkey underline the central themes of community participation and capacity building and the financing of recurrent costs.

Community participation is a central tenet of the GEF's biodiversity portfolio. The Bolivia Biodiversity Conservation Project, for instance, supports the development of an integrated approach to managing Bolivia's protected areas system and involves local, indigenous communities and institutions in the management and rational use of natural

resources within protected areas. The project seeks, in part, to help convert some of Bolivia's "paper parks" into functional units and includes training to enable local communities to assume increased responsibility for managing the protected areas.

Similarly, the Ghana Coastal Wetlands Management Project supports the implementation of a coastal zone management plan for the country with the support of communities that depend on the lagoons for their livelihood. Aiming to protect several significant wetland sites that provide critical wildlife habitat for more than 80 percent of the migratory waterfowl traveling along Ghana's coast, the project examines options for multiple-use management by traditional communities living adjacent to the lagoons. Techniques and technologies are explored for aquaculture, agroforestry, fisheries management, and salt production by local communities in ways that are compatible with sustaining the habitat for the migratory birds.

Throughout the year the most difficult and complex issue in Bank GEF biodiversity projects has been the potential clash between sustained conservation of biodiversity and the livelihood of rural communities and indigenous peoples. Recognizing the need for a systematic and comprehensive approach to this issue, the Bank commissioned guidelines for community consultation that would require for GEF projects the preparation of sociocultural profiles for project stakeholders and local participation plans, including plans for NGOs. These guidelines will undergo external review, including reviews by specialized NGOs and social scientists, before being adopted.

Financing recurrent costs is another common constraint in biodiversity projects, and there is movement toward the use of trust funds to provide a dependable long-term mechanism to meet recurrent costs, and some capital costs, of biodiversity conservation programs. The first GEF conservation trust fund was the 1992 Bhutan Trust Fund for Environmental Conservation. Trust funds have since then been incorporated into fiscal 1993 GEF projects in Bolivia, Belarus, and the Congo. In all, fourteen projects in the GEF's investment portfolio have components related to trust funds.

The Belarus Forest Biodiversity Protection Project demonstrates how the GEF can create opportunities for other biodiversity benefactors. Based on understandings reached with the GEF, the MacArthur Foundation, a U.S. private foundation with a strong interest in biodiversity conservation, has provided the initial capital for conservation trusts in the Belarus, Czech and Slovak, and Ukraine biodiversity projects of several hundred thousand dollars each. The Belarus project provides counterpart funding to the Poland Forest Biodiversity project for managing the transborder Bialowieza primeval forest.

The Congo Wildlands Protection and Management Project provides for the design of a trust fund to ensure a minimum level of permanent funding for conservation and management plans for twelve gazetted areas earmarked for conservation. Once established, the trust fund will be open to bilateral donors, NGOs, and others for contributions. The \$10 million GEF project will be the cornerstone of a broader long-term program for preserving six unique ecosystems in the Congo, and involves inventories of species, training, institutional strengthening, and studies of indigenous communities and their relation with their surrounding environment and ecosystem stability.

The emergence of trust funds and endowments as the main response to insufficient and unreliable local funding was largely unforeseen at the beginning of the pilot phase. Now they constitute a major option for mobilizing resources and stabilizing fragile conservation administrations in the poorer and more volatile developing economies. Apart from protecting minimum budgetary requirements for effective biodiversity conservation, trust funds can underpin institutional stability and longevity, providing a measure of career security for nationals trained in relevant technical fields. One negative experience to date, however, is that requiring significant up-front offshore funding to match GEF capital is unrealistic and can delay the early effectiveness of these financial instruments. The Bank's GEF coordinator is reviewing experience to date in designing and establishing trust funds under the GEF to establish best practice recommendations and to report on outstanding issues and solutions being considered.

Finally, the Turkey In Situ Conservation of Genetic Diversity Project seeks to identify and establish in situ conservation areas in Turkey to protect genetic resources of forest tree species and landraces and threatened wild relatives of important domesticated crops (for example, barley, chickpeas, lentils, and wheat) that originated in Turkey. More than 3,000 plants are known to be endemic to the country, and the \$5 million GEF project targets the genetic variability in specific plants, allowing the wild relatives of crop species to develop in their original environment to ensure ample supply of genetic material to gene banks and plant geneticists around the world.

The pilot phase of GEF is intended to demonstrate innovative approaches to the common challenges to biodiversity conservation. How to recognize and measure success or failure of novel, risky, or even conventional approaches in new settings is an important question addressed by the Bank's new guidelines for monitoring and evaluation of GEF biodiversity projects. The guidelines were prepared by the GEF coordinator's office in consultation with leading NGO practitioners and

researchers and endorsed by the STAP and Bank operations managers during the past twelve months. Already several GEF projects under preparation have begun to apply the guidelines to develop the mandatory monitoring and evaluation plans.

INTERNATIONAL WATERS. The GEF's portfolio of investments in international waters covers management of freshwater bodies and river basins, marine pollution, and marine ecosystems. Responsibility for these areas of the global commons has traditionally been ill-defined, and there is little accountability for their use or abuse. The pilot phase portfolio addresses the management of these complex issues in some typical physical and geographic circumstances: from the heavily trafficked sea-lanes of the southwest Mediterranean to international river basins in eastern and southern Africa and eastern Europe.

International waters investment projects being implemented in the interconnected multicountry ecosystems of the Danube basin and river, the Danube delta, and the Black Sea illustrate the priority given to solving problems that cross borders and the benefits to biodiversity from controlling water pollution. Two projects approved in the past year further the GEF's integrated efforts on this front.

Among the main objectives of the Seychelles **Biodiversity Conservation and Marine Pollution Abatement Project** are to control pollution from ships and to evaluate the reception and disposal facilities needed to comply with the provisions of MARPOL, the Protocol on Prevention of Pollution from Ships. A simultaneous objective is to restore the priceless Aldabra atoll ecosystem, which provides habitat for the only surviving population of giant tortoises in the Indian Ocean.

In a contrasting but equally important initiative on international waters, Egypt has developed the **Red Sea Coastal and Marine Resource Management Project** as part of its NEAP. The 2,420 kilometer-long coast of the Red Sea is known for its extensive coral reefs, black mangrove swamps, and extremely diverse marine life, but it suffers serious environmental pressures from tourism, coastal urbanization, and activities related to oil exploration and transport. Through interagency coordination the \$4.75 million GEF project aims to create and implement a coastal zone resource management plan, based on an assessment of the potential for tourism and the need for long-term protection of the ecosystem, while supporting the sustainable development of Egypt's Red Sea region. This GEF assistance to Egypt is in parallel with GEF support to Yemen to develop a similar marine resources protection program, and from a GEF perspective both are seen as initiatives in the framework of the Red Sea and Gulf of Aden Convention and GEF support for strength-

ening its agreement oversight functions. The convention is expected to monitor and exchange lessons learned from the projects in Egypt and Yemen with other Red Sea states.

With the fifth tranche endorsed in May by GEF participants, the international waters portfolio almost fully reflects its design brief from the STAP with respect to activities eligible under the GEF. Nearly every type of international body of water and numerous international water pollutants are covered in the pilot phase portfolio. Shared management of a large freshwater lake is not directly addressed in the pilot phase work program but has been endorsed by the STAP and the implementation committee for preparation as part of the GEF reserve program for the Lake Victoria Ecosystem Management Project. This project will marry conservation of globally unique lacustrine biodiversity with plans to restore the functions of Lake Victoria to a high level of productivity. The three participating governments (Kenya, Tanzania, and Uganda) are enthusiastic about the intended collaboration that will be assisted by GEF. Challenges to the health of Lake Victoria come from overfishing, loss of exotic fish species, depletion of forests in the basin, unsustainable agriculture and agricultural chemical runoffs, and urbanization and waste discharge along the shoreline.

OZONE DEPLETION. Responsibility for demonstrating effective approaches to protecting the ozone layer falls in the domain of the Montreal Protocol, with funding from its Multilateral Fund. Although most developing countries have access to these funds, after the pilot phase the GEF will be responsible for assisting countries with economies in transition—almost exclusively in central and eastern Europe—that are not eligible for Montreal Protocol funds because they consume or produce too many ozone-depleting substances. Enabling these countries to phase out consumption and production of ODSs will become an area of increasing importance for the GEF, since these economies consume more ODS than all the developing countries that benefit from the Multilateral Fund combined. To date GEF investment in protecting the ozone layer has been limited to projects in the Czech and Slovak republics and to an upper atmospheric monitoring function in the Southern Cone countries of Latin America. Planning for future investments to phase out ODSs has begun in the GEF's pilot phase in Belarus, Poland, Russia, and Ukraine.

Countries eligible for GEF assistance in phasing out ODSs are receiving the benefit of the Bank's experience as an implementing agency of the Multilateral Fund in designing and implementing least-cost measures to protect the ozone layer. Many countries, including China, Malaysia, Thailand, Turkey, and Venezuela, have already received financing from the fund. Experience under the Montreal Protocol indicated that

"no-clean" techniques to replace solvents in electronics manufacture, the use of alternative refrigerants in mobile air conditioners, the use of water or carbon dioxide in blowing flexible foams, and the replacement of CFC's with hydrocarbon propellants in aerosol sprays are common early initiatives in phasing out ODSS in developing countries and economies in transition.

LAND DEGRADATION. In April 1992 GEF participants agreed that land degradation issues, specifically desertification and deforestation as they relate to the four focal areas of the GEF, should be eligible for GEF funding. To this end, the GEF Workshop on Land Degradation and Desertification was organized by the UNDP and UNEP in October 1992. A group of international experts on desertification and land degradation discussed the technical implications of the decision to make land degradation issues eligible for GEF funding and reviewed the phenomena of land degradation and desertification in the global context, with the specific purpose of sharpening and identifying projects. Experts produced a set of recommendations and conclusions that were given to GEF participants in December 1992.

Research

As the interim funding body for the biodiversity and climate change conventions, the GEF is charged with covering the incremental costs involved in achieving global environmental benefits above and beyond national level benefits (box 4-2). This raises several important questions, in particular, what is the basis on which resource transfers are taking place, and how should eligible costs be defined? To acquire a better understanding of the concept of incremental costs and how it can be applied in an operational setting, the GEF has launched the Program for Measuring Incremental Costs for the Environment (PRINCE).

The \$3 million PRINCE program comprises methodology studies that are refining the main concepts and operational procedures for determining incremental cost. Field tests are demonstrating these concepts and procedures, and dissemination activities are promoting best practices through workshops, training programs, and publications. UNEP plans to conduct a series of country studies next fiscal year on the basis of the methodologies developed under PRINCE.

Nongovernmental Organizations and the Global Environment Facility

NGOs have much to contribute toward achieving the objectives of the GEF. Local community groups and NGOs provide information, advice,

Box 4-2. Measuring Incremental Costs

Incremental costs are the additional net costs incurred as a result of redesigning an activity, or selecting an alternate activity, in relation to some baseline plan. When the baseline plan is designed to achieve only national benefits and when the redesign or alternate selection is made to meet a global environmental objective, the incremental cost is that of achieving the resulting global environmental benefits.

"Agreed incremental cost" is the principle upon which GEF grants would be based. GEF funding is therefore intended to cover the full amount of the additional expenditure that is not offset by any additional nationally appropriated benefits. Agenda 21 as well as the climate change and biodiversity conventions each refer to "agreed full incremental costs," the meaning of which will be made clearer by the respective conferences of the parties after the conventions enter into force.

Grants based on incremental costs could cover a wide range of expenditures. Although in typical cases the incremental cost will be a relatively small proportion of the total cost of the redesigned or alternate activity, there are cases in which the incremental cost will be equal to the full cost of the activity. In these cases the baseline plan does not include any activity of the sort being proposed; this is clearly the case with inventory studies of greenhouse gases, for example, in which there may be national benefits in undertaking the study.

In the GEF pilot phase the concept of incremental costs was not explicit but was reflected in the types of projects to be funded and was underscored by the GEF participants' view that a clear distinction was needed between GEF programs, which generate global environmental benefits, and regular development programs. The incremental cost principle was difficult to apply uniformly in practice. This was because there were not always agreed ways to define the relevant baseline for measuring incremental costs and benefits, to take account of the effects of national economic policy and industrial strategy on the resulting costs of achieving global environmental objectives, to treat the purely financial (as opposed to the economic) incremental costs, or to value environmental benefits or future cost savings.

and program implementation services and offer substantial resources to help ensure that GEF programs and projects consider the needs and concerns of local populations. NGOs also help involve communities in defining and carrying out strategies to address environmental problems. In particular, the capability of affected community groups and local NGOs is a critical ingredient for monitoring project sustainability and evaluating long-term accomplishments of projects funded by the GEF.

The GEF is making considerable efforts to involve NGOs in both project work and broader policy and program issues. Consultation with NGOs precedes each semiannual meeting of participating governments. In conjunction with the Fourth Participants' Meeting in December 1992, more than eighty-five NGO representatives took part in the third GEF-NGO consultation in Cote d'Ivoire: thirty-one from industrial countries and Eastern Europe and fifty-five from developing countries. Some fifty NGOs attended the fourth consultation in Beijing in May 1993.

Various initiatives have been launched to ensure that NGOs themselves play a significant role in drawing up the agenda for the consultations and selecting the approximately twenty developing country representatives funded to attend these events. A task force, made up of the implementing agencies and NGO representatives met several times before the consultation in Cote d'Ivoire.

More recently a working group has been established to pursue the debate on NGO participation in the GEF. At the Beijing Participants' Meeting in May 1993, participants agreed that the Administrator's Office should facilitate a review by representatives of both NGOs and participants on how to improve the productivity of NGO-GEF consultations. The aim is to develop an action plan to implement the options contained in a paper prepared for the Beijing meeting on NGO involvement with the GEF.

The GEF also supports a Small Grants Programme for projects put forward by grassroots groups and NGOs in developing countries. Under the program, which is managed by the UNDP, grants are awarded to community groups and NGOs for activities that demonstrate community-based approaches to problems in the GEF's four thematic areas. The program was operational in twenty-five countries by June 1993 and will expand to thirty-three countries before the end of the calendar year. There is a ceiling of \$50,000 for each national project and \$250,000 for regional projects.

To further strengthen NGO consultation and planning, the Bank, as a GEF implementing agency, has commissioned a set of guidelines. These guidelines will cover local participation plans to improve effective collaboration of local communities and NGOs in the design and implementation of GEF investment projects. These guidelines will be field tested for GEF operations in fiscal 1994 under the supervision of the Bank's Social Policy and Resettlement Division.

Beyond the Pilot Phase

In the transition from pilot to permanent status, a major challenge facing the GEF is how it can play a catalytic role in integrating global environ-

mental considerations into the regular development assistance programs of bilateral and multilateral agencies. To meet this challenge, and in preparation for its expanded responsibilities under the Climate Change and Biodiversity conventions, the GEF is undertaking important institutional adjustments of restructuring, replenishing, and evaluating the pilot phase.

RESTRUCTURING. The GEF participants are currently working out the details of the restructured GEF based on the set of principles agreed to by governments at meetings in April and June 1992 (outlined in "The GEF: Beyond the Pilot Phase" and in chapter 33 of Agenda 21) (box 4-3). The principles include the availability of the GEF to serve as the funding mechanism for agreed global environmental conventions, the balanced and equitable representation of developing and industrial countries in the governance of the GEF, and universal membership.

Box 4-3. Principles of GEF Restructuring

The following eight principles were agreed to by participants to guide the restructuring of the GEF.

- I. Provide additional grant and concessional funding of the agreed incremental costs for achieving agreed global environmental benefits.
- II. Finance activities that benefit the global environment. It would continue to support its current four focal areas. Land degradation issues, primarily desertification and deforestation, as they relate to the focal areas of the GEF, would be eligible for financing.
- III. Be available to function as the funding mechanism for agreed global environmental conventions, should the parties to those conventions so desire.
- IV. Assure the cost-effectiveness of its activities in addressing the targeted global environmental issues.
- V. Fund programs and projects that are country driven and consistent with national priorities designed to support sustainable development.
- VI. Build on proven institutional structures, such as the partnership among the UNDP, UNEP, and the World Bank, to avoid creating new institutions.
- VII. Be transparent and accountable to contributors and beneficiaries alike.
- VIII. Have sufficient flexibility to introduce modifications as the need arises.

At the December 1992 Participants' Meeting in Abijan, Côte d'Ivoire, participating governments began negotiations on the restructuring of the GEF. Additional sessions took place in Rome (March 1993) and in Beijing (May 1993). Meetings are scheduled for September (Washington, D.C.), and, finally, December 1993 (Cartagena, Colombia), with the aim of completing work and reaching agreement on the main elements of the restructured GEF and its replenishment.

Arrangements during the operational stage will build on the joint cooperation during the pilot phase by the UNDP, UNEP, and the World Bank. These seek to minimize the creation of any new bureaucracy and maximize the benefits from the combined experience and expertise of the three implementing agencies.

There is agreement that the GEF should work with the regional development banks, the UN agencies, and bilateral agencies to involve them in GEF technical assistance and investment projects. The implementing agencies are working with the regional development banks and UN agencies on the modalities for such cooperation.

The GEF has been designated by the Convention on Climate Change and the Convention on Biodiversity as their interim financial mechanism. Their governing bodies must decide on permanent arrangements once the conventions enter into force. The division of responsibility is broadly as follows: the conventions are responsible for policy and program priorities and eligibility criteria while the GEF participants will focus on programming and implementation and will ensure that conventions' priorities and criteria are respected. GEF participants will also report regularly on activities mandated by the conventions.

REPLENISHMENT. The Earth Summit recommended that funding for Agenda 21 be provided in a way that maximizes the availability of new and additional resources and uses all available sources and mechanisms for funding. One mechanism identified by Agenda 21 is a restructured GEF to cover the agreed incremental costs of activities with global benefits.

The replenishment process formally began at the Beijing Participants' Meeting, and negotiations will run parallel to those on restructuring. In Beijing many donors supported the view that a replenishment of SDR 2 billion to 3 billion (\$2.8 billion to \$4.2 billion) for a period of three to four years was an appropriate range to aim for in the replenishment discussions. The process should be finished by the end of 1993.

EVALUATION AND LESSONS LEARNED. The GEF has been an important learning experience for the implementing agencies, the recipient govern-

ments, and the donors. The GEF has covered new areas, especially biodiversity; new modalities, including a pioneering relationship between the World Bank Group and UN agencies; and new relations between donors, recipients, and NGOs. Furthermore it has proved sufficiently flexible to allow many mid-course corrections to its policies and procedures.

As the pilot phase draws to a close, the participants have requested an independent evaluation of the three-year exercise. Initiated in April 1993, the evaluation will be jointly managed by the three senior executives of the independent evaluation departments of the three partner agencies; for the Bank, by the OED. Experienced independent teams have been recruited to carry out the work, which should be completed by November 1993. An independent panel of experts, comprising two members of GEF participant delegations and five other independent high-level experts in the fields of development, environment, and evaluation, will provide strategic and technical guidance to the evaluators.

The purpose of the independent evaluation is threefold: to assess the progress and prospects of the pilot phase; to examine GEF policies, procedures, and processes as well as their probable impact on the use of GEF resources and the achievement of objectives; and to make recommendations about the effective use of those resources. It is too early to evaluate on-the-ground results of projects, because only about one-third of the 113 projects in the portfolio are currently being implemented, and they are at a very early stage. Nevertheless field visits have been organized so that the project development process may be examined more closely. Issues such as local ownership and participation as well as interagency cooperation in the field will be examined.

While awaiting the results of the independent evaluation, the implementing agencies have already identified preliminary lessons learned during the pilot phase and their implications for future work. Capacity building has proven to be critically important for achieving the GEF's objectives, because few governments, in both industrial and developing countries, have in place the policies, institutions, or technical capacity to respond to the GEF's priority issues. Community involvement is also central to improving project design and management, particularly in the area of biodiversity. Greater efforts need to be made to increase dialogue with affected and local communities. Similarly, external consultation and expert scientific and technical input, while sometimes causing delays or additional costs, often improves project design. As the GEF moves beyond the pilot phase, its approach will clearly focus less on discrete demonstration projects and more on addressing global environmental priorities for attaining sustainable development at the national level.

Notes

1. Algeria, Austria, Belgium, Brazil, Canada, China, Côte d'Ivoire, Denmark, Egypt, Finland, France, Germany, India, Indonesia, Italy, Japan, Mexico, Morocco, the Netherlands, Nigeria, Norway, Pakistan, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

2. This includes \$3 million for the noninvestment PRINCE policy research project to be carried out by the GEF Administrator's Office. PRINCE is discussed later in this chapter.

3. For purposes of identification, GEF investment projects approved by the Bank in fiscal 1993 are presented in bold type throughout the chapter.



UNICEF/JIM WRIGHT

Squatter village in the Philippines. The poor are often exposed to the greatest environmental health risks. Alleviating poverty and promoting economic growth in developing countries are critical components of the World Bank's strategy to help countries move toward environmental security.



PART II

Building Capacity for the Task

The previous four chapters have described the Bank's environmental agenda. These next two chapters will address how the Bank is better equipping itself for the task. In the past year three broad sets of factors dominated the Bank's efforts to strengthen its environmental capacity. First, the growth and volume of Bank assistance for country environmental management was unprecedented. Second, there was increased emphasis on project quality and the Bank's lending portfolio, in part caused by several reports on the Bank's performance with respect to environmental concerns. Third, the Bank's interaction with a wide range of external groups grew rapidly. Chapter 5 deals mainly with the Bank's efforts with respect to the first two sets of issues, particularly with raising internal capacity for environmental work by reorganization and policy change, staff expansion, and training. Chapter 6 looks at the third set of issues, notably building partnerships and improving communications with the international community.



SHAHANA IQBAL

A crowded bus in Bangladesh. Governments are striving to address the growing challenges of urbanization. To effectively help developing countries build their capacity for environmental management, the World Bank must continue to strengthen its own capacity for the task.

5. Equipping the Bank

The 1987 Bank reorganization marked the start of a major shift of emphasis and resources toward the environmental aspects of the Bank's work. The previous Office of Environmental Affairs expanded into a central Environment Department and four Regional Environment Divisions. The momentum continued with subsequent improvements to the internal environmental policies (see the list of environmental and social operational policies in annex A). The *World Development Report 1992: Development and the Environment* and an active program of research enlarged the analytical basis for integrating economic development and protection of the environment and broadened the Bank's environmental policy framework.

During the year, however, important questions were raised about the overall performance of the portfolio of Bank-financed projects, and recommendations were made and accepted for improving the portfolio's performance. The "Report of the World Bank's Portfolio Management Task Force" (the Wapenhans Report) concluded that, although portfolio performance had been satisfactory during the past decade, with more than 75 percent of projects having acceptable performance during implementation, there had been a gradual deterioration in the quality of the portfolio. The share of projects with "major problems" increased from 11 percent in fiscal 1981, to 13 percent in 1989, and to 20 percent in 1991. Extensive discussion on how to reverse this decline followed, and a plan of action was launched. Its main features are to move the management of projects under implementation to center stage, to involve borrowers and communities more in projects to encourage ownership and improve results, and to increase supervision and other resources to help borrowers carry out projects more successfully. More emphasis will be placed on the sustainability of projects, and internal changes will be introduced to alter institutional behavior and attitudes.

The plan applies to all aspects of the Bank's work, including its environmental activity. Although the evidence showed that the overall performance of environmental lending was acceptable, the OED raised

concerns about the environmental performance of projects and how their environmental components were carried out. Furthermore, the Independent Commission on Narmada (see chapter 2) found serious deficiencies in the implementation of the projects' resettlement and environmental aspects. Taken together, all these reports emphasized the importance of an accelerated movement by the Bank toward shifting attention and resources to improved supervision and implementation of projects, tailoring projects more realistically to the capacity of the country, and stressing borrower ownership and participation.

Restructuring for Better Implementation

Influenced by the findings of the reports mentioned above, in the past year the Bank modified its structure to strengthen its delivery of services to borrowers. This restructuring responded to the growing demand from borrowers for Bank assistance on environmental issues and to the need to strengthen internal monitoring and implementation, as noted above. The broader aim was to establish clearer lines of responsibility for internal guidance and external relations in the three main components of the Bank's development and poverty reduction efforts: environmentally sustainable development, human resources development, and private sector development.

The changes involved replacing the central Vice Presidency for Sector and Operations Policy with three new vice presidencies: Environmentally Sustainable Development (ESD), Human Resources Development and Operations Policy, and Finance and Private Sector Development. These new central vice presidencies were charged with providing policy guidance, operational support, and dissemination of best practices to assist member countries and to improve project performance. At the regional level, technical staff were realigned to better provide the wide range of specialized services needed to prepare and supervise projects.

The Vice Presidency for Environmentally Sustainable Development

The decision to establish the new vice presidency explicitly recognized the need for a significant shift in emphasis from "development" and "environment" as two separate perspectives to a fully integrated approach toward "environmentally sustainable development." Three departments were placed under this vice presidency—the Environment Department; the Agriculture and Natural Resources Department; and the Transport, Water, and Urban Development Department. The mandate of ESD is to help develop an effective response to three crucial challenges: the challenge of food production, which requires a major new

effort to improve agricultural productivity; the challenge of urbanization, which calls for mobilizing special efforts in urban management to provide more affordable housing and utility services and to control pollution to create a healthy urban environment; and the challenge of natural resource and ecosystem management.

Within ESD the Environment Department continues to be responsible for coordinating the Bank's overall environmental policies and associated development approaches. Its tasks are to identify and disseminate best practices for environmental management, provide technical and analytical support to Bank operations, and coordinate relations with outside agencies on environmental issues. The director of the Environment Department has been designated Chief Advisor on Environment to the President, and the department has been reorganized and expanded from three to four divisions: the Land, Water, and Natural Habitats Division; the Pollution and Environmental Economics Division; a new Social Policy and Resettlement Division; and the Global Environment Coordination Division (the coordinating unit for all GEF investment projects managed by the Bank, as well as projects implemented with resources from the Montreal Protocol Multilateral Fund). The Bank's role as one of the three GEF implementing agencies also includes responsibility for the overall administration of the GEF. This function is vested in a separate division, the Office of the GEF Administrator.

The other departments in ESD also have an important role in environmental matters. In the Agriculture and Natural Resources Department, a new Natural Resources Division has been established to better promote environmentally sustainable management and use of soil, water, and forest resources in borrowing countries. This new division is responsible for helping operations staff to implement the new water and forest policies adopted this year. The Infrastructure Department continues to lead the Bank's work on sanitation and water supply, urban management, and transport-related environmental issues.

Thematic Teams

To deal with environmental issues crossing departmental lines, thematic teams have been established in six areas: water resource management; land management; the urban environment; social policy; indicators, concepts, and methodologies; and the nexus of poverty, population, gender, and the environment. These teams draw on resources from the three departments of ESD under a team leader. Members are rotated as the needs for skills change, providing expertise for projects, policy work, and training with cross-sectoral and multidisciplinary dimensions. With respect to the Bank's recently issued policy paper on water resources

management, for instance, the water resources thematic team is preparing guidelines to help borrowing countries put the principles enunciated in that policy paper into practice. The social policy thematic team is providing guidance on the Bank-wide policy on social impacts assessment. The thematic team on urban environmental problems is piloting selected operations in major cities to develop best practice in addressing urban environmental issues and is strengthening the treatment of urban issues in NEAPs and project-level EAs. The work of the teams on concepts and indicators is described in chapter 1.

Other Central Vice Presidencies

As part of the Bank's reorganization, the Vice Presidency for Finance and Private Sector Development incorporated the existing Industry and Energy Department and the Energy Sector Management Assistance Program and is thus responsible for guiding the Bank's work on renewable energy and providing operational support on environmental issues associated with the energy sector. The Development Economics Vice Presidency has established a division for research on environment, agriculture, and infrastructure in the Policy and Research Department, and the Human Resources Development and Operations Vice Presidency is responsible for leading the Bank's policy and analytical work on population, health and nutrition, education, and human resources development.

Other Specialized Units for Environment

The environmental work of the central and regional environmental units was supplemented by an expanded Environmental Affairs Unit in the Legal Department. The environmental capacity of the OED was also expanded, as was the capacity of the Bank's EDI (see chapter 6). The Bank's External Affairs Department also devoted considerable staff resources to covering environmental issues.

Strengthening Environmental Capacity

As part of the larger effort of the reorganization to improve Bank capacity for sustainable development, actions are under way to build the Bank's environmental capabilities. Expert environmental staff are being redeployed and recruited to increase the environmental expertise at both the regional and country levels of Bank operations and to meet growing demand from borrowers. Further, an enhanced program of staff training is substantially strengthening environmental skills.

Regional Environmental Units

Within the regions, staff, including environmental staff, have been transferred from the technical departments to the country departments to strengthen implementation capacity. This deployment of technical staff enables the Bank to offer technical expertise more directly to the Bank's borrowers. Technical departments retained their regional environmental units, while some technical staff transferred to the central vice presidencies to reinforce operational support and policy guidance. The four regional environmental divisions continued to be responsible for reviewing and clearing environmental aspects of Bank-funded projects; they also retained leadership on themes common within the region and a project support role where specialized environmental expertise is needed by country operations.¹

Country Departments

The environmental capacity of the country departments has also been substantially strengthened by the reorganization, because many full-time technical environment staff from the regional environmental divisions were transferred to the country departments. Each of the twenty-two country departments in the Bank now has an environmental coordinator (commonly an environmental specialist) to serve as technical adviser and contact point for environmental issues and to coordinate efforts across regions and with the central departments.

Moreover a growing number of country departments have established environmental units or sections. This trend began in November 1989 with the creation of the environmental unit for the China Country Department, and there are now nine such units, which generally contain two or more professionally trained environmental specialists as well as other full-time staff working on environmental issues. In the Indonesia Country Department, for example, a three-person unit has been created to coordinate Bank-wide initiatives, to carry out environmental studies and develop a pipeline of pollution control projects, and to help the sectoral divisions integrate environmental issues into their work program. These environmental units are frequently merged with units addressing other prominent sectoral concerns. For example, the China/Mongolia Country Department has an Environment, Human Resources, and Urban Development Division. The Brazil Country Department has an Environment and Agriculture Division that brings together interrelated concerns, especially in the Amazon region. In the Europe and Central Asia region each of the four departments has designated a division to lead the work on the environment. The country

department covering the Middle East also created an environmental unit this past year.

Demand-driven growth in environmental work from the Latin America and Caribbean region is expected to speed creation of environmental units in country departments that do not have them. The department covering Mexico and Central America is creating an environmental section in which four higher-level staff are responsible for the country strategy work.

Recruitment of Environmental Staff

During the past twelve months the number of full-time environmental staff and long-term consultants continued to grow to meet heavy new demands arising in the Bank's operational work. The central Environment Department and four regional environment units now comprise some 157 higher-level staff and long-term consultants, compared with 140 in fiscal 1992. This number does not reflect the total number of staff years involved, however; environmental concerns have become more integrated throughout the Bank's activities, and all task managers and country officers now dedicate some time to environmental issues. Most important in gauging real progress on project operations is the growth of environmental staff within country departments, where more than thirty environmental specialists and long-term consultants now work full-time on environmental matters. In addition environmental staff increased in other units of the Bank such as the EDI and the OED. Taken together, more than 200 environmental higher-level staff and long-term consultants now work full-time on environmental matters in the Bank, compared with 5 in the mid-1980s. At least the same number of technical specialists in forestry, water and sanitation, energy, health, economics, and other areas spend part of their time on environmental issues.

ANTICIPATED DEMAND. Although these numbers show progress, there continued to be significant constraints on staffing as demand for technical skills rose sharply during the year because of the increased demand from member countries, the Bank's new environmental commitments (for example, NEAPs and EAs), and the need for more intensive efforts to improve the environmental quality of projects.

Lending for the environment is expected to continue to rise. In South Asia and East Asia, for example, it is expected to double from 1990-92 to 1993-95, and the number of EAs also is expected to double during the next three years. The first generation of Bank-supported, stand-alone environmental projects is only three to four years old. The number of such projects under implementation doubled in 1991 and again in 1992,

requiring substantially increased specialized skills for supervision. Similarly, as environmental policies have become operational, more category A projects are reaching the implementation stage and require special supervision. The number of completed NEAPs will nearly double in the next twelve months. The demand for social inputs is similarly rising, particularly the technical support for resettlement components. The Bank and its borrowers face the relatively new challenge of encouraging public participation in projects. All of this highlights the need for bolstered internal environmental capacity and technical expertise.

ASSESSMENT OF STAFFING NEEDS. This year a Bank-wide assessment of environmental staffing needs was completed. It identified the need for an additional sixty-five positions during the next three years, to be divided fairly equally among pollution, natural resource, and social disciplines. Because the skills required are highly technical, it was recognized that rather than redeploying staff, additional staff would have to be recruited. To meet this need, the president of the Bank has endorsed the creation in 1994 of twenty-seven new positions for technical environmental specialists and twelve new positions for social scientists.

It was noted that throughout the Bank not only the quantity of environmental staff but also the quality and types of expertise available needed more attention. More emphasis was required on recruiting well-qualified candidates with relevant development experience in the region and subject areas involved. In response to these special recruitment needs, the Personnel Department has instituted a system of staffing groups that help to provide skills-mix profiles to improve recruitment, training, and career development. The system, which is in the early stages of implementation, is expected to help the Bank consider an international pool of candidates, draw up stronger lists of qualified candidates, and successfully recruit the best-qualified and best-matched candidates. A technical panel also has been established to screen all promotions of staff to senior environmental and social science positions.

Environment Training for Staff

In addition to redeployment and recruitment of environmental expertise, the Bank has also given increased emphasis this year to training staff in environmental issues. Efforts focused on integrating resource management concerns into Bankwide sectoral activities as well as addressing environmental and social issues in country and regional operations.

BANKWIDE TRAINING. Training in environmental and social issues is the fastest growing sector in the work program of the bank's Training

Division. Additional regional training efforts for specialized needs also have increased. During the past twelve months the Training Division conducted twenty-three courses in environment, averaging about two days each and reaching more than 500 staff throughout the Bank. Significantly increased attention was given to sector-specific EA, environmental economics, and resettlement (table 5-1). The environmental economics courses were among those reaching the most Bank staff. They span the entire range of environmental interactions associated with Bank activity from the microeconomic level through to the economywide or macroeconomic levels. Of particular importance are improved applications of economic valuation techniques in EA to improve project design and cost-benefit analysis. The principal mode of training in these courses was best-practice examples, highlighting state-of-the-art analytical techniques and methodologies.

Table 5-1. Internal Training Courses for Bank Staff on Environmental Issues, Fiscal 1993

Sector-specific environmental assessment

- Environmental assessment for agriculture staff
- Environmental assessment for transport staff
- Environmental assessment for water and sanitation staff
- Environmental assessment for urban staff
- Environmental assessment for industry staff
- Environmental assessment for energy staff

Environmental economics and impact analysis

- Introduction to environmental economics
- Economic analysis of environmental impacts
- Economywide policies and the environment

Special issues

- Participatory forestry management
- National environmental action plans
- Water resources management
- Indigenous peoples and economic development
- Involuntary resettlement workshop
- Environmental legal procedures
- Legal issues in resettlement and rehabilitation
- Resettlement workshop for agriculture and environment
- Issues of environmental sustainability for Africa

Introduction to conceptual issues

- Seminar on environmental sustainability in developing countries
 - Workshop on sustainable environmental resource management
-

COUNTRY AND REGIONAL TRAINING. In addition each of the Bank's six operational regions increasingly provided its own environmental training, ranging from short, specialized seminars with technical speakers to one- or two-day technical workshops. These activities addressed the specific needs of the countries or regions. For instance, the Regional Environment Division of the Latin America and the Caribbean region collaborated with the EDI in seminars on EA for government and private sector audiences in borrower countries (such as Argentina, Honduras, and Paraguay) and provided intensive, short-term, project-specific training to the in-country teams carrying out EAs on category A projects and some category B projects. In the Europe and Central Asia and the Middle East and North Africa regions, EA training was provided to Bank staff, personnel from borrowing countries, and consultants. During the year such seminars were held in Estonia, Hungary, Iran, Latvia, and Lithuania. The Mediterranean Environmental Technical Assistance Program (see chapter 1) also conducted extensive training, and its regional staff and the Urban Development Division within the Transportation, Water, and Urban Development Department jointly conducted training on urban environmental audits. Regional training in Asia has focused heavily on industrial pollution and forestry management issues. The Africa region has been particularly active in providing training and materials on the development of NEAPs.

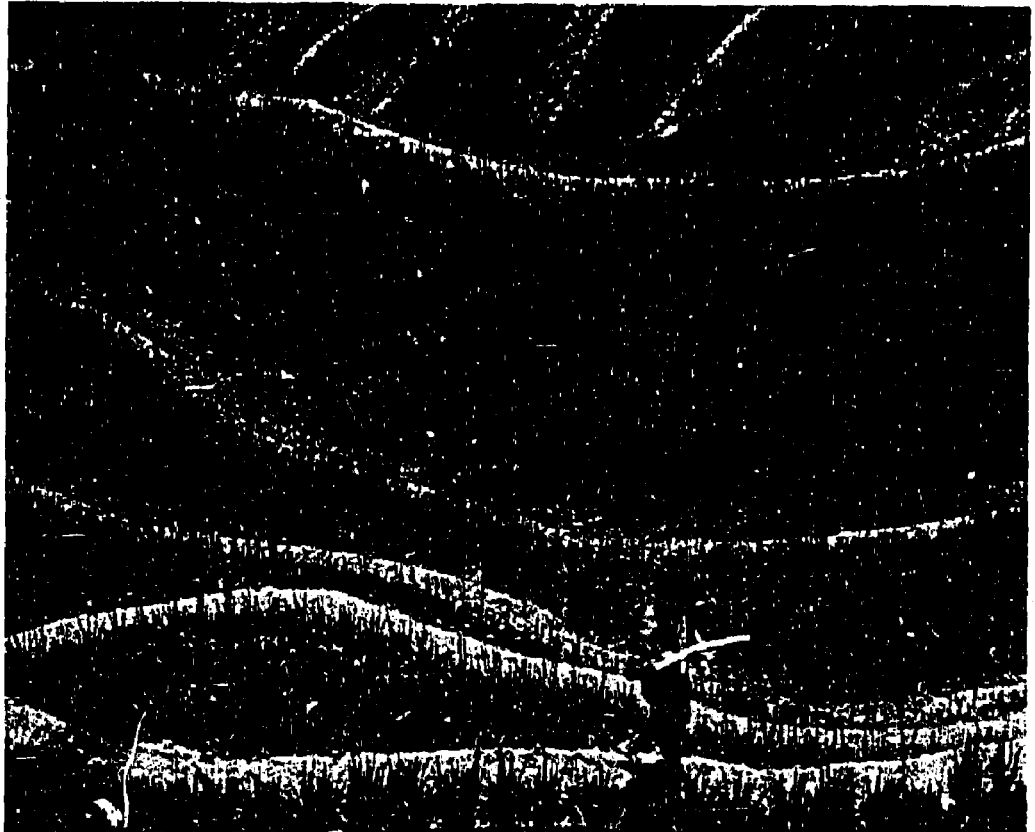
ASSESSMENT OF TRAINING NEEDS. As with staff capacity, the need for staff environmental training was also assessed. It was recognized that, building on experience to date, more systematic core environmental training was needed throughout the Bank to ensure that existing generalist staff would be better able to deal with basic environmental issues, that general economists could continue to upgrade their environmental economics skills, and that technical staff could be kept current in this rapidly expanding area. The program of the Training Division, which had been operating as a pilot program for two years, needed to be expanded and regularized. The future program will include a flagship course, "Fundamentals in Environmental Management," complemented by more focused core courses in basic environmental economics, valuation techniques, and the environmental impact analysis of economywide policies. Critical skills courses will address issues of involuntary resettlement, indigenous peoples, industrial pollution, and conservation of biological diversity.

There is still a great deal to learn about environmental management, and the Bank remains on a steep learning curve. The analytical literature on the subject in developing countries is doubling every eighteen

months. Thus an important part of staff training and skills maintenance is the availability of best-practice materials, updated guidance in such areas as industrial pollution, and improved analytical tools to understand environmentally sustainable development. The bibliography lists major Bank publications and working papers published since June 1992 in these and other areas. During the coming year increased attention will be paid to writing industrial pollution guidelines and practical handbooks in such areas as natural resources management, including social factors, and environmental valuation. Several policy, guidance, and best-practice products will be prepared jointly by different environmental units and other sectors (such as agriculture, health, energy, infrastructure) and by the cross-sectoral thematic teams.

Note

1. In Africa, the former Regional Environment Division was merged into a new Environmentally Sustainable Development Division with three units: an environmental unit (the former Regional Environment Division), an agriculture and natural resources unit, and a transport and urban development unit. Each unit has a unit chief. In the Technical Department for Europe and Central Asia and the Middle East and North Africa Regions, the former Environment Division was retained and, in addition, three other groups were established to parallel the three central vice presidencies: an Environmentally Sustainable Development Group, a Human Resources and Social Development Group, and a Private Sector Development and Finance Group. In the East Asia and Pacific and the South Asia Regions, the former Environment Division was expanded to an Environment and Natural Resources Development Division encompassing environment, agriculture, and transport and urban development. In that department, resettlement was moved to the Human Resources Development Division. Finally, in the Latin America and the Caribbean Region, the former Environment Division continued under the same general structure.



WORLD BANK PHOTO

Different strains of rice planted on terraces in the Philippines. The World Bank supports the collaborative efforts of the Consultative Group on International Agricultural Research (CGIAR) to develop new crops and technologies for sustainable agriculture in developing countries.

6. The World Bank and the International Community

Implementing the Bank's expanding environmental agenda requires building partnerships and improving communication with the international community. As global environmental problems and awareness of them have grown, Bank shareholders as well as the general public have become more active in expressing their views about what action on the environment is expected from multilateral financial institutions such as the Bank. At the same time, as the Bank's environmental experience has grown, there have been more lessons to share and technical challenges to face, calling for partnerships with specialists outside the Bank. This year the Bank has had to be particularly active in discussions with shareholder governments, NGOs, and the media. The follow-up to the Earth Summit, the IDA-10 replenishment negotiations, and events surrounding the Sardar Sarovar (Narmada) project have all warranted serious discussions on the Bank's environmental responsibilities.¹ Such events further underscored the benefits of a more proactive Bank strategy toward increased transparency and external collaboration. This chapter looks more closely at the Bank's relations with the international community. It discusses the Bank's place among international organizations in the year following the Earth Summit, its outreach to regions and countries, the training offered to borrowing countries by the EDI, work with NGOs, and communication efforts with the broader public.

Interagency Cooperation

The challenges of integrating environmental concerns into development efforts are too complex for independent or isolated approaches, and cooperation and collaboration are increasingly essential for effective planning, implementation, and operation of sustainable development initiatives. During the past year much of the Bank's environmental work was done in close collaboration with other development institutions and agencies at the multilateral, bilateral, and regional levels.

International

This year the Bank has been active in efforts to improve the UN system's response to Agenda 21. The Bank participated in the UN Task Force on interagency follow-up to the Earth Summit and was active in the Inter-Agency Committee on Sustainable Development to improve coordination and cooperation within the UN system in implementing Agenda 21. Senior managers participated at the first meeting of the UN Commission on Sustainable Development in June 1993 and will continue to work collaboratively with the new UN Department for Policy Coordination and Sustainable Development of the Office of the Under-Secretary General. The Bank will also continue to participate in technical meetings with other international and bilateral partners on how to implement specific areas of Agenda 21, particularly the new and future conventions in biodiversity, climate change, and desertification.

The Bank continued to participate in the Committee of International Development Institutions for Environment, a group of seventeen agencies created in 1980 and chaired by UNEP.² The Bank's work on environmental economics with the committee is discussed further in chapter 1.

Regional

An important feature of the Bank's outreach to the international community has been greater communication and collaboration, particularly with regional development banks, to ensure compatible and reinforcing strategies in the regions. For instance, the Bank's Latin America and the Caribbean region hosted a regional interagency workshop on indigenous development initiatives; participants included the Inter-American Development Bank (IDB), the International Fund for Agricultural Development, the International Labor Organization, and the Economic Commission for Latin America and the Caribbean. The workshop resulted in a major new initiative to assist preinvestment activities designed to strengthen indigenous organizations and their management capabilities, human resources formation and information, and research dissemination. In December 1992 the same region sponsored a joint workshop between the regional environment divisions of the World Bank for Latin America and the Caribbean and counterpart environmental technical divisions in the IDB to improve coordination and communication on environmental policies, technical assistance, environmental assessment, and the preparation of NEAPs.

World Bank collaboration with regional banks also has become increasingly important at the project level with cofinancing of environment projects and environment components of projects. Within Latin

America, joint financing efforts with the IDB include support for preparation of NEAPs. Work with regional organizations on policy also has grown. The Bank has active links with the European Commission and European Parliament and has continued to participate in the Development Assistance working party on Development Assistance and Environment of the Organization for Economic Cooperation and Development. Emerging areas for joint action for this working party and the Bank include collaboration on national plans for sustainable development, donor cooperation on environmental assessment, economics and environment, and capacity development in environment.

As noted in chapter 1, the Bank has embarked on several regional cofinancing and collaborative efforts. The Metropolitan Environmental Improvement Program (supported by the UNDP and the World Bank) focuses on institution building in five large Asian cities; the Mediterranean Environmental Action Program (sponsored by the European Investment Bank and the World Bank), on regional land-based environmental issues; and the Central and Eastern Europe Environmental Action Program (supported by the World Bank and European donors), on a regional environmental framework of priorities for input into national plans. Similarly, under the joint auspices of the Bank, the UNDP, and the United Nations Center for Human Settlements, the Urban Management Program promotes appropriate policies and provides assistance through partnerships at the city level.

Bilateral

In the past year the Bank has strengthened partnerships with bilateral donor agencies working in environment and development and has improved communication with the legislatures of their home countries. Senior management increased visits to donor capitals to exchange views on priorities and approaches to environmentally sustainable development. During these visits meetings were arranged with parliamentarians, government officials, NGOs and the media. Discussions included follow up to the Earth Summit, the role of the new Vice Presidency for Environmentally Sustainable Development, and technical issues relating to sustainable development.

Operationally, Bank collaboration with bilateral organizations in specific environmental activities grew, both through project cofinancing and increased donor trust funds for environment. Among the twenty-three freestanding environment projects listed in annex B, about 20 percent had bilateral cofinancing components. Such arrangements provide increased opportunity for exchanging information and experience among technical environmental staff of the Bank and donor countries.

Donor consultant trust funds for environment have provided a major support for the Bank's environmental work in recent years, facilitating use of donor environmental specialists and increased technical dialogue among institutions on environmental priorities and best practices. Beginning about three and a half years ago (the first fund was provided by the Norwegians in December 1989), consultant trust funds provided by donor governments specifically for environmental activities have grown to such an extent that, by the end of June 1993, environment was the most emphasized sector by volume of funds, some \$6.7 million, followed by agriculture with \$4.4 million. During the past twelve months consultant trust funds for environment from industrial countries were provided by Belgium, Canada, Finland, the Netherlands, Norway, and Sweden. India and Pakistan also have consultant trust funds that can be used for environmental work of country nationals.

In addition special funds have been established under World Bank trusteeship. One example is the Rain Forest Trust Fund, which supports the Pilot Program to Conserve the Brazilian Rain Forest. As of June 30, 1992, this trust fund had total commitments of about \$58 million from Canada, the European Community, Germany, Japan, the Netherlands, the United Kingdom, and the United States. Cofinancing pledged for the program totals some \$280 million (see chapter 4 for more on the pilot program).

Another important source of targeted donor finance is the Policy and Human Resources Development Fund for technical assistance, financed by Japan. During the year this fund continued to provide technical assistance in support of Bank projects and programs with an emphasis on improving the quality of projects entering the Bank's portfolio. One of the priority sectors of the fund is environment. Since June 1992 thirty grants totaling \$22.4 million were approved for technical assistance in the preparation of environment projects expected to be financed by the Bank.

Borrower Training and the Economic Development Institute

The Bank's EDI has become an important way for the Bank to communicate about the environment with its borrowers and the international community. As Bank environmental policies and requirements have expanded, along with increased environmental awareness among borrowers, demand for environmental training by the EDI has grown among borrowers in all regions of the Bank. To better meet this demand, the EDI allocated additional resources to its program of environmental training, including resettlement. Three environmental specialists were appointed

to its Agriculture and Rural Development Division, which was renamed the Agriculture and Environment Division. Formal and informal ties with operational units, especially those dealing with environment, and the central Environment Department were strengthened through increased consultations on the EDI's environmental training strategy. In addition a marked increase in bilateral and multilateral cofinancing of the EDI's environmental training has provided additional resources and expanded the scope of its work.

The emphasis of the EDI's environmental training this year has been on strengthening borrowers' institutional capacity to manage environmental change. Environmental planning concepts and assessment skills have been particularly prominent in the several training activities that the EDI organized for senior policy advisers and decisionmakers. Training activities also included seminars on development policy and environment as well as sectoral environmental training in forestry and energy (table 6-1). Recognizing the role of NGOs in development, the EDI also carried out several seminars with NGOs in developing countries, as discussed below.

Conference on Environmentally Sustainable Development

To bring together specialists, practitioners, and policymakers on environmentally sustainable development, the Bank is planning the first Annual International Conference on Environmentally Sustainable Development for September 1993. This conference will consider issues central to environment and development in the world after the Earth Summit, including lessons of experience in the transition from policy to practice and discussion of innovative approaches to environmentally sound economic development. The annual conference will take place at the time of the annual meetings of the International Monetary Fund and the World Bank to attract the attention of government leaders from both developing and industrial countries. It will provide a forum for the most knowledgeable specialists and practitioners to exchange ideas on state-of-the-art economic and financial tools, theories, and practice to help achieve environmentally sustainable development.

The World Bank and the NGO Community

The Bank's relations with NGOs continued to expand in depth and magnitude in fiscal 1993 at both the policy level and through Bank-supported lending operations. The Bank continues to work with developing country member governments to increase the involvement of NGOs,

Table 6-1. Environmental Training Activities of the Economic Development Institute, Fiscal 1993

<i>Date</i>	<i>Location</i>	<i>Environmental seminar or workshop for borrowers</i>
1992		
July	Washington, D.C.	Worldwide Seminar on Energy Management and the Environment
November	Egypt	Regional Seminar on Development for Policy and the Environment
	Ethiopia	Regional Seminar on Energy Policy and the Environment
	Malaysia	International Seminar on Economic Development and Environmental Management
	Malaysia	Regional Seminar on National Forestry Management for Sustainable Development
	Egypt	National Seminar on Energy Investment and the Environment
December	Egypt	Regional Seminar on Environmental Assessment for Arab States
1993		
January	Thailand	Collaborative Approaches Seminar: Regional Context for Environmental Policy
February	Thailand	Regional Consultative Meeting on Biodiversity Conservation
March	Bolivia	Expert Group on Amazonian Biodiversity Conservation
April	Hungary	Regional Seminar on Energy Sector and Environmental Issues in Eastern Europe
May	Washington, D.C.	Former Soviet Union Energy Project Analysis and Management Seminar
June	Argentina	National Seminar/Workshop on Environmental Impact Assessment
	Paraguay	National Seminar/Workshop on Environmental Impact Assessment
	Turkey	Regional Seminar on Environmental Impact Assessment for Arab States

especially in the early stages of project planning and design, to improve the quality of Bank support to developing countries and to share the benefits of emerging lessons of experience.

During the past year the Bank has faced considerable criticism from environmental NGOs on matters of policy and environmentally sensitive projects. Nonetheless collaboration between the Bank and NGOs at the project level has increased substantially from past years. Growing evi-

dence from the OED's report, *Annual Review of Evaluation Results for 1991*, reinforces the Bank's strong conviction that significant involvement of local beneficiary organizations (including local NGOs) improves the performance and sustainability of projects. In fiscal 1993 seventy-three Bank projects—representing 30 percent of all new projects approved this year—involved collaboration with NGOs. Of these, 62 percent involved grassroots organizations, 84 percent included national intermediaries, and 55 percent involved international NGOs. NGOs were involved most heavily in projects concerned with population, health, and nutrition (64 percent); agriculture and rural development (53 percent); and water supply and sanitation (42 percent). Participation by NGOs in Bank projects overall is expected to continue in about 30 to 40 percent of projects approved by the Bank each year.

At the policy level, the NGO-Bank Committee, created in 1982, continued to meet on a broad range of issues, including poverty reduction, popular participation, structural adjustment, and environment. At the committee's twelfth annual meeting in Washington, D.C., in October 1992 a session discussed follow-up to the Earth Summit, and an NGO-Bank Steering Committee meeting in Managua, Nicaragua, in May 1993 was devoted to the joint evaluation exercise. Other consultations with NGOs included discussions on Bank policies on forestry, water resource management, energy efficiency, biodiversity, and agriculture. In recognition of NGO concerns about future IDA priorities, the Bank arranged for a group of developing country NGO leaders to meet with IDA deputies and senior Bank staff in Washington to express their concerns about Bank environmental policies. Although the group had strong criticism of certain Bank activities, they also stressed the importance of full IDA replenishment.

International and developing country NGOs are also taking part in an increasing number of Bank operations and activities, providing technical expertise on the environment and playing an important role in facilitating effective participation in the design, preparation and environmental assessment of projects. Examples include the Uttar Pradesh Sodic Lands Reclamation Project in India, which finances the support of intermediary and grassroots NGOs to help organize beneficiary participation in the reclamation of about 45,000 hectares of farmland. In Ghana, Madagascar, and Nigeria NGOs participated in the development of the NEAPs and are also involved in Bank-financed government projects to implement the plans. For instance one of the components of the Bank's Ghana Environmental Resource Management Project is a GEF coastal wetlands project, which supports environmental education provided by an NGO. In another case, the Guinea NEAP is being prepared by an NGO, "Guinea Ecologie." In Indonesia the government was particularly interested in a

community-managed, demand-driven approach to the Water Supply and Sanitation for Low-Income Communities Project. Major NGOs in the water sector were invited to submit proposals, and two, CARE Indonesia and Bina Swadaya, were selected for project preparation in five provinces. Moreover, in the Russian Federation Oil Rehabilitation Project, the Socio-Ecological Union, the largest NGO in Russia, was involved in preparing the Environmental Impact Statement. During the process it consulted with other national and local NGOs and in particular with those who have begun to represent the concerns of indigenous peoples.

Efforts to improve the sharing of information with NGOs also were made this year. The computerized database of the Bank's NGO Resource Center has been regularly updated, and it now contains current and comprehensive information on more than 6,000 NGOs worldwide. This year, the Bank's *Monthly Operational Summary of Bank and IDA Proposed Projects* was mailed to 420 NGO subscribers around the world, and the Environment Department increased the distribution of its quarterly newsletter, "Environment Bulletin," to about 10,000 NGOs (up from 6,000 last year) (see below).

Finally, the EDI continues to work with NGOs to increase their role in poverty alleviation, both through cooperation with, or participation in, official (government and donor) programs and through their own independent activities. National or regional workshops that dealt with ways for governments and NGOs to cooperate to improve development programs were undertaken in the areas of health, resettlement, and management of water resources. With cofinancing from donors, including the governments of Japan and the Netherlands, the EDI also supports multiyear institutional development programs led by NGOs. The principal programs address urban poverty in Latin America, strategic planning in francophone Africa, poverty alleviation in Africa, and women as entrepreneurs. These programs are either organized by local NGOs or conducted in close collaboration with them. They have the dual aims of increasing the effectiveness and efficiency of NGO programs and of building training capacity in developing regions to serve NGOs in the long term.

Communication with the Broader Public

The growing number of publications related to the environment and other information materials being produced on Bank environmental policy and projects, research, case materials, and best-practice guidance are important tools for communicating with the general public. The bibliography lists publications produced in the past year that address environmental and social issues in development. These materials cover

a widening range of subjects. The "Environmental Bulletin," which provides highlights of environment projects, current events, conferences, workshops, and other publications, is published quarterly by the Environment Department. The bulletin is the most widely disseminated publication, with a readership of 25,000—including NGOs, UN agencies, governments, academics, and individuals. The technical publication in most demand this past year was the *World Development Report 1992: Development and the Environment*, with more than 90,000 copies distributed worldwide. Another broadly disseminated publication, the Bank's *Monthly Operational Summary of Bank and IDA Proposed Projects*, now sent to more than 1,800 subscribers worldwide, contains an annex, prepared every quarter, of detailed environmental information for projects with environmental impacts that are potentially significant. A new Bank-wide environment publication series started during the year, *The World Bank Environment Papers*, is intended to communicate quickly the latest results of the Bank's environmental work to the development community.

At the country and regional levels, each of the regional environment divisions this past year began to produce an environment newsletter with highlights of their work. Some have started an environment paper series, such as the African Environmental Assessment Working Paper Series. Similarly, the Environment Division of the Latin America and the Caribbean Technical Department initiated a series of dissemination notes to share the results of key environmental operational and analytical work.

The Bank's External Affairs Department also continued to develop information materials for international agencies, parliamentarians, NGOs, and the media, giving increasing priority to the environment in the Bank's outreach activities. Among other efforts, the department prepared Information Briefs on specific environmental topics (for example, the GEF, biodiversity, and the environment and development). It also produced several environmental documentary films during the year.

- "Development and the Environment: A New Partnership" offers a broad overview of the issues raised in *World Development Report 1992: Development and the Environment* and discusses ways in which sustainable development could take place effectively in the aftermath of the Earth Summit.
- "Global Environment Facility" describes the function of the GEF in the midst of growing global environmental problems.
- "Rondônia: The End of the Road?" looks at the ways that the government of Rondônia is now trying to protect the valuable Amazonian Rain Forest while at the same time providing essential

services and a means of living to the many thousands who have moved there in the past twenty-five years.

- "Orangi: Streets of Hope" describes the initiatives taken by the members of a low-income neighborhood community in Karachi, Pakistan, to provide themselves with sanitation and clean water when the government was not able to assist them.

Finally, it was agreed during the fiscal year to make environmental assessments and environmental analysis of IDA-funded projects available to the public at Bank headquarters in Washington, D.C., and in field offices beginning in July 1993, after the information has been made available in the borrowing country. During the year the Bank also initiated extensive internal review and analysis of its overall information disclosure policy, in place since 1989, with a view to broadening the transparency of its operations.

In August 1993 the Bank established a new policy, effective January 1, 1994, to broaden further general dissemination of information on its activities, enhance the quality of its work and strengthen public understanding of it. Among other things, this new policy will make more factual information about projects, including environmental information, publicly available during project preparation and extend public access to IBRD environmental assessments through Bank headquarters and field offices after the assessments have been made available in the borrowing country.

Notes

1. As the concessional lending arm of the World Bank Group, IDA's funding base is replenished every three years by special pledges conditioned on performance expectations that are negotiated in advance.

2. The seventeen members of the committee include the African Development Bank, Asian Development Bank, Commission of the European Communities, European Investment Bank, Inter-American Development Bank, International Fund for Agricultural Development, World Food Programme, Food and Agriculture Organization of the United Nations, Caribbean Development Bank, Caribbean-American Bank for Economic Integration, Arab Bank for Economic Development in Africa, European Bank for Reconstruction and Development, Nordic Investment Bank, Organization of American States, United Nations Development Programme, World Bank, and United Nations Environment Programme.

Annex A. Environment- and Social-Related Operational Policies and Directives

Beginning in fiscal 1993 and during the next three years, existing Operational Directives (ODs) will be revised and incorporated into a new system of operational policies and procedures. The ODs and operational policies that guide the Bank's work on environmental and social issues are described briefly below.

Primary ODs on Environment and Social Issues

OD 4.01 Environmental Assessment

This directive outlines Bank policy and procedures for the environmental assessment and environmental analysis of Bank lending and operations. Environmental consequences should be recognized early in the project cycle and taken into account in project selection, siting, planning, and design.

OD 4.02 Environmental Action Plans

This directive outlines Bank policy and procedures for preparing national environmental action plans by borrowing governments. It is Bank policy to foster preparation and implementation of an appropriate plan in each country, reflect the findings and strategies of the country's plan in Bank work, and provide technical assistance as requested. The plan aims to identify key environmental problems, set priorities for dealing with them, and identify appropriate investments.

OD 4.03 Agricultural Pest Management

The Bank's policy promotes effective and environmentally sound pest management practices and advocates the use of integrated pest management techniques in Bank-supported agricultural development projects.

OD 4.20 Indigenous Peoples

This directive provides policy guidance to ensure that indigenous people benefit from development projects and to avoid or mitigate adverse effects of Bank-financed development projects on indigenous peoples.

OD 4.30 Involuntary Resettlement

This directive describes Bank policy and procedures on involuntary resettlement, as well as the conditions that borrowers are expected to meet in operations involving involuntary resettlement. Where large-scale population displacement is unavoidable, a resettlement plan, timetable, and budget are required. The policy aims to ensure that the population displaced by a project is provided with the means to improve, or at least restore, their former living standards, earning capacity, and productivity levels.

OP 4.36 Forestry

This policy statement provides guidance to Bank staff involved in forestry projects, detailing that the Bank will not finance commercial logging operations or acquisition of equipment for use in primary moist tropical forests; in forests of high ecological value it will finance only preservation and light, nonextractive use of forest resources. Objectives are to provide for a sustainable stream of direct or indirect benefits to alleviate poverty and to enhance community income and environmental protection.

OD 9.01 Procedures for Investment Operations under the Global Environment Facility

This directive describes the steps in addition to standard Bank investment lending procedures—including environmental assessment—required to process GEF operations.

OD 4.00B *Environmental Policy for Dam and Reservoir Projects*

This annex sets out policy for dam and reservoir projects and codifies best practices, including preparation of preliminary reconnaissance to identify potential environmental effects and ascertain the extent of needed environmental studies and actions. The policy requires creation of an independent panel of environmental experts for large dams and other projects with major environmental implications. Adverse environmental impacts should be avoided, minimized, or compensated for wherever possible during project design (such as modifying dam location or height) and by measures implemented as part of the project.

Operational Policy Note 11.02 (Under revision to OP 4.04)

Wildlands: Their Protection and Management in Economic Development

Bank policy is to support projects which protect and enhance wildlands and to support projects where wildlands may be otherwise affected only so long as appropriate conservation measures are incorporated, including measures to avoid conversion of wildlands of special concern.

Operational Policy Note 11.03 (Under revision to OP 4.25)

Management of Cultural Property in Bank-Financed Projects

Bank policy is to assist in the preservation of cultural properties where they are part of a Bank-financed operation, and to avoid their elimination. The Bank normally declines to finance projects that will significantly damage non-replicable cultural property, and assists only those projects that are sited or designed so as to prevent such damage.

ODs That Support Environmental Goals

OD 8.41 *Institutional Development Fund (IDF)*

This directive describes the purpose and use of the fund as a small grant facility for financing technical assistance for institutional development work in policy reform, country management of technical assistance, and areas of special operational emphasis, such as the environment.

OD 14.70 *Involving Nongovernmental Organizations in Bank-Supported Activities*

This directive sets out a framework for involving NGOs in Bank-supported activities and provides staff with guidance on working with NGOs, including those organized to address environmental and social issues.

ODs with Environmental References

OD 2.00 *Country Economic and Sector Work*

This work analyzes the macroeconomic and sector development problems of borrower countries. As the long-term quality and sustainability of development depends on other factors in addition to economic ones, country economic work may also focus on questions of the environmental effects of alternative policy options.

OD 2.10 *Country Strategy Papers*

These papers are the primary vehicle for the planning and review of the Bank's country assistance strategy. Areas of special emphasis, such as environment, may be integrated in the discussion of development issues and policy agenda in the country. The papers should also recommend and justify the overall Bank assistance strategy in terms of expected impact on country objectives, such as environmental protection.

OD 2.20 *Policy Framework Papers*

These papers are vehicles for governments to reach agreements with the Bank and International Monetary Fund on the broad outline of medium-term programs to overcome balance of payments problems and foster growth. The papers should maintain an adequate balance in the coverage of social and environmental, as well as macroeconomic, sectoral, and institutional issues, and set out priorities for actions in key policy areas, including environment.

OD 4.15 *Poverty Reduction*

This directive summarizes policy and guidelines for operational work in poverty reduction. Attention is given to the impact of

sector policies on the links between environmental issues and poverty.

OD 8.40 Technical Assistance

Bank policy and procedures for technical assistance include preparation and implementation support for environmental action plans, various phases of the project cycle, and environmental assessment. Institutional development assistance may address the need to strengthen capacity for environmental analysis and enforcement.

OD 8.60 Adjustment Lending Policy

Analysis of adjustment programs considers implications for the environment. Bank staff should review the environmental policies and practices in the country, take into account the findings and recommendations of such reviews in adjustment program design, and identify the linkages among the various reforms in the adjustment program and the environment.

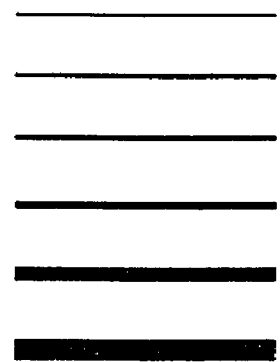
OD 9.00 Processing of Investment Lending

This directive summarizes Bank procedures and documentation required for investments and loans, including projects with environmental objectives and components, and provides guidance to Bank staff. Procedures include determination of project environmental category, type and timing of an environmental assessment, and environmental issues to be examined. This is followed by discussion of a project's environmental impact, main findings of the environmental assessment, consultation with affected groups, and feedback to these groups on the findings of the assessment.

OD 13.05 Project Supervision

This directive summarizes Bank procedures for project supervision, which includes preparation of a supervision plan for each project and discussion with the borrower during project appraisal. The plan should cover the supervision period and include aspects of the project that require special Bank attention during supervision, e.g., environment.

Annex B. Projects with Environmental Objectives and Components Approved in Fiscal 1993



This annex provides details on projects approved by the Bank's Board of Directors from July 1, 1992, to June 30, 1993, that have environmental objectives or components. The list illustrates the diversity of environmental concerns addressed by Bank projects and includes both "primarily" environmental projects (titles in italics) and projects with "significant environmental components." Projects are considered "primarily" environmental if either the costs of environmental protection measures or the environmental benefits accruing from the project exceed 50 percent of the total project costs or benefits. Projects are considered to have a "significant environmental component" if the environmental protection costs or benefits exceed 10 percent of total project costs or benefits. Dollar figures provided for "primarily" environmental projects represent the Bank share (IBRD loan or IDA credit) of the total project cost.

<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
Africa Gabon	<i>Forestry and Environment Project</i> (IBRD \$22.5 million)	Represents first phase of a long-term effort toward rational use of the natural resource base. Aims to restructure and strengthen the capacity of the Ministry of Waters and Forestry and the Ministry of Environment for planning, monitoring, and supervision; make forestry and environment training more applicable to private sector and conservation needs; support forestry and environment research activities; prepare and implement a management plan in the depleted coastal zone area; and support government creation and maintenance of wildlife reserves.

<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
The Gambia	Agricultural Services Project	Increases agricultural productivity and income growth through institutional strengthening for agriculture sector planning, management analysis, and extension; improves research and training; and promotes self-reliance and farmer empowerment.
Ghana	<i>Environment Resource Management Project</i> (IDA \$18.1 million)	Supports implementation of the NEAP by strengthening institutional and technical capabilities required for effective environmental monitoring, policy formulation, and coordination. Includes development of Environmental Resource Management System for central and regional coordination, regulatory, and tenurial functions; development of methodologies to minimize land degradation through community and farmer planning and management; and demarcation and management of five coastal wetlands sites, including inventory, monitoring, public education programs, and studies.
Kenya	Second Agricultural Sector Management Project	Includes support to develop the institutional capacity to prepare and implement a NEAP.
Malawi	Agricultural Services Project	Expands agricultural extension services for resource-poor smallholders to include more integrated information on farm management, land resources and conservation, and agroforestry and provides livestock and environmental training to farmers.
Mozambique	Maputo Corridor Revitalization Project	Reviews the existing standards of occupational health and safety and pollution abatement; examines liability issues surrounding the environmental management of the transport system in the corridor and recommends environmental standards; and assesses the investments required to comply with those standards.
	Rural Rehabilitation Project	Provides information about land use and supports the development of land policies to provide more secure tenure for smallholders.

<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
Nigeria	Lagos Drainage and Sanitation Project	Supports the preparation of plans, feasibility studies, and design for improved human waste and wastewater disposal, as part of a larger effort to improve living conditions and economic functioning in Lagos.
	Second Multi-State Roads Project	Includes support to build technical capacity at the state level to assess the environmental impact of road projects.
Seychelles	<i>Environment and Transport Project (IBRD \$4.5 million)</i>	Aims to improve the basis for sustained growth of tourism while preserving or restoring environmentally sensitive areas. Supports implementation of the Seychelles Environmental Management Plan, preparation of a water resources study and management plans for outer islands and of marine resources management plans, and includes organizational review of the Division of Environment. GEF component supports biodiversity conservation and marine pollution abatement.
Sierra Leone	Freetown Infrastructure Rehabilitation Project	Upgrades urban infrastructure by providing sanitary and solid-waste disposal facilities, garbage collection and disposal facilities, and technical assistance for solid-waste management.
Asia China	Agricultural Support Services Project	Strengthens agricultural extension services through improved agricultural information systems and supports the development of effective regulatory and monitoring services for fertilizers and pesticides and IPM technology.
	Changchun Water Supply and Environment Project	Supports the control of urban water pollution through expansion and improvement of water treatment facilities, construction of sewers and sewage treatment plants, provision of environmental quality monitoring and control equipment, and institutional strengthening.

<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
China (continued)	<i>Environment Technical Assistance Project (IDA \$50 million)</i>	Improves the coordination of environmental monitoring and ecological research; promotes cleaner industrial production and technologies to prevent pollution and minimize waste; improves economic policy instruments for pollution control, especially the pollution levy system; and strengthens the system for environmental assessment.
	Shanghai Port Restructuring and Development Project	Includes the provision of dust- and noise-control devices and new effluent and waste management facilities as part of a larger port restructuring project.
	Sixth Railway Project	Provides technical assistance to strengthen the environmental protection capability of the Ministry of Railways and to develop and implement medium- and long-term strategies to address environmental concerns.
	<i>Southern Jiangsu Environmental Protection Project (IBRD \$250 million)</i>	Assists local authorities to strengthen environmental planning and management capabilities and to carry out priority initiatives in the regional environmental strategy; provides a line of credit for industrial pollution control subprojects and environmental management subprojects; supports the construction of municipal facilities for urban wastewater management; establishes solid- and hazardous-waste management and registration centers, emergency response centers, and hazardous materials storage and transshipment facilities; and provides technical assistance and training for the local institutes and companies responsible for environmental protection.
	Zhejiang Multicities Development Project	Assists in the development of long-term environmental policies, strategies, and programs to reduce pollution, support wastewater treatment, and strengthen environmental institutions.

Country	Project	Environmental component
India	Bihar Plateau Development Project	Supports protection against soil erosion and conservation of moisture to increase the productivity of dryland farming, as part of a larger effort to reduce the incidence of poverty in southern Bihar State.
	Jharia Mine Fire Control Technical Assistance Project	Includes the preparation of an environmental management plan to assess and mitigate the environmental and social effects of mine fires and to help resettle people living in areas endangered by fires.
	Karnataka Rural Water Supply and Environmental Sanitation Project	Supports a water quality monitoring program and measures for groundwater recharge, construction of environmental sanitation facilities, and health communication efforts to improve hygiene and environmental sanitation.
	<i>Renewable Resources Development Project (IDA \$115 million, IBRD \$75 million)</i>	Promotes commercialization of renewable resources technologies by financing private sector investments in alternate energy subprojects, including irrigation-based small hydros, wind farms, and solar photovoltaic systems; expanding bagasse-based paper mills; and creating marketing and financing mechanisms for the sale and delivery of alternate energy systems. Includes technical assistance for institutional development and the promotion of renewable energy technologies. The GEF component supports development of wind, solar, and photovoltaic capacity and provides technical assistance components.
	Rubber Project	Brings land degraded by slash-and-burn shifting agriculture under rubber cultivation, benefiting tribal people, reducing threat from soil erosion, and improving nutrient and moisture retention.
	<i>Uttar Pradesh Sodic Lands Reclamation Project (IDA \$54.7 million)</i>	Develops concomitant models for environmental protection and improved agricultural production through reclamation of sodic lands; strengthens local institutions, enabling the effective management of such programs with strong beneficiary participation and NGO support; and supports the development and dissemination of agricultural and reclamation technology.

<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
Indonesia	<i>Integrated Pest Management Training Project (IBRD \$32 million)</i>	Promotes environmentally sound crop production systems through a five-year program to train at least 800,000 farmers in the theory and application of IPM; supports occupational health studies and field investigations; and strengthens the regulatory and environmental management framework, primarily for IPM policies, to reduce the risks associated with the manufacture, distribution, and application of pesticides.
	<i>Water Supply and Sanitation for Low-Income Communities Project</i>	Provides low-cost sanitation facilities as part of a larger effort to ensure adequate water supply and sanitation services.
Korea, Republic of	<i>Environmental Research and Education Project (IBRD \$60 million)</i>	Provides specialized equipment, training, and library materials to upgrade the capacity of twelve national agricultural colleges and nine national veterinary colleges to undertake research into key environmental problems, reinforce the colleges' programs to strengthen professional training in environmental fields, and support improved environment-related research and teaching programs.
	<i>Kwangju and Seoul Sewerage Project (IBRD \$110 million)</i>	Aims to reduce pollution in two major rivers and the western coastal waters by expanding wastewater treatment facilities in Kwangju and Seoul, supporting institutional development for wastewater management, and promoting innovative technological and policy initiatives for water conservation.
Pakistan	<i>Fordwah Eastern Sadiqia Irrigation and Drainage Project (IDA \$54.2 million)</i>	Supports efforts to control waterlogging and salinity through improved water management, increases delivery efficiency of canals and watercourses, improves water conservation by recovering and limiting seepage, provides a network of surface drains to evacuate storm water runoff, provides technical assistance to implementing agencies and for staff training, and supports the monitoring and evaluation of the project's impact on groundwater levels and agriculture production.

<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
Pakistan (continued)	<i>Northern Resource Management Project (IDA \$28.8 million)</i>	Provides the basis for the sustainable and economically efficient use of land resources in Azad Jammu and Kashmir by improving the policy framework for land resource use, restructuring and strengthening the main institutions that manage and protect land resources in the area, and testing programs in which communities take management and financial responsibility for planning and implementing activities for sustainable resource management.
Sri Lanka	Colombo Urban Transport Project	Finances procurement of air quality testing equipment and preparation of an air quality monitoring and management study to develop an emissions inventory, monitor major pollutants, carry out policy option feasibility studies, and strengthen the monitoring and enforcement capabilities of the Central Environment Authority.
	Community Water Supply and Sanitation Project	Constructs and upgrades water and sanitation facilities and helps to build implementation, operation, and maintenance capacity as part of a five-year program of rural water and sanitation investments.
Europe and Central Asia; Middle East and North Africa		
Egypt	<i>Matruh Resource Management Project (IDA \$22 million)</i>	Supports natural resource management to conserve the area's water, land, and vegetation; promotes adaptive research, extension services, and training directed to local communities; provides rural finance with special attention to on-farm and off-farm income-generating activities targeted to small farmers, the landless, and women; and strengthens community participation and dialogue with existing local institutions.
	<i>Private Sector Tourism, Infrastructure, and Environmental Management Project (IBRD \$130 million)</i>	Provides financial support for water supply, sewerage, solid waste collection and disposal facilities for existing tourist resorts; provides technical assistance and training to develop environmental guidelines and enforce environmental rules; and helps to strengthen the institutional framework for environmentally sound future developments. GEF component supports the development and implementation of a coastal zone environmental management plan for the Red Sea coast.

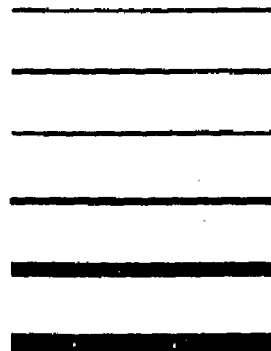
<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
Morocco	Second Large-Scale Irrigation Improvement Project	Promotes environmental protection through improvements in water use efficiency and land management as part of a larger effort to increase the efficiency, cost-effectiveness, and sustainability of the irrigation sector.
Tunisia	<i>Second Forestry Development Project (IBRD \$69 million)</i>	Supports sustainable development and management of forests with the active participation of forestry populations through institutional and infrastructure strengthening, preparation of environmental management plans, establishment of plantations and rehabilitation of prairies, and support for studies and training.
Turkey	<i>Bursa Water and Sanitation Project (IBRD \$129.5 million)</i>	Aims to improve environmental conditions, reduce health hazards, and increase the efficiency of water usage by building water supply and waste treatment and transfer works, improving waste collection and disposal, and providing technical assistance for project implementation and institutional strengthening.
	<i>Eastern Anatolia Watershed Rehabilitation Project (IBRD \$77 million)</i>	Addresses problems of rural poverty and natural resource degradation by helping to improve the productivity of range and forest land; promotes the production of fuelwood, cultivated fodder, and more sustainable use of marginal farmlands; facilitates the adoption of treatments for range and forest land; and supports the increased responsibility and involvement of local communities in planning and managing their resources. GEF component supports in situ gene conservation of globally significant indigenous species.
Latin America and the Caribbean		
Argentina	Yacyreta Hydroelectric Project II	Implements resettlement and environmental management programs required for reservoir operation to address and mitigate the negative environmental impacts and to strengthen local government institutions responsible for the resettlement program.

Country	Project	Environmental component
Bolivia	<i>Environmental Technical Assistance Project</i> (IDA \$4.8 million)	Aims to strengthen key government environment-related institutions through training in planning, management, environmental assessment, and evaluation; supports the development and strengthening of an environmental legal and regulatory framework; and helps to develop the capacity of the primary school system to provide environmental education.
Brazil	<i>Minas Gerais Water Quality and Pollution Control Project</i> (IBRD \$145 million)	Helps recuperate environmentally deteriorated river basins through improved flood control and urban drainage; the collection, treatment, and disposal of municipal and industrial sewage and solid waste; strengthened environmental protection and water basin management; and the institutional strengthening of the State Environmental Agency.
	<i>Rio de Janeiro Metropolitan Transport Decentralization Project</i>	Supports a reduction in bus service and the promotion and increased capacity of the rail transportation system as part of a larger transportation decentralization effort to reduce air and noise pollution and traffic congestion.
	<i>State Highway Management Project</i>	Aims to develop the capacity in the local government to implement and monitor environmental standards and guidelines for state roads.
	<i>Water Quality and Pollution Control Project—São Paulo/Parana</i> (IBRD \$245 million)	Reduces current levels of water pollution and preserves water quality through river regularization and flood control drainage, provision of basic sanitation services, and collection and disposal of solid waste; helps establish policy for water pollution control and create water basin management units; develops the financial capacity to provide services; and sets up project preparation facilities to help start water pollution control projects in the most congested urban areas in Brazil.

<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
Chile	<i>Environmental Institutions Development Project (IBRD \$11.5 million)</i>	Establishes an institutional framework to manage activities for environmental protection and the conservation of natural resources, including updating the legal environmental framework, incorporating environmental assessment in public and private sector activities, training professionals in environmental and natural resource management, and establishing an environmental information system; supports institutional strengthening and the economic analysis of selected environmental problems; and strengthens the environmental management capacity of priority sectors.
	<i>Irrigation Development Project</i>	Improves water conservation and management by rehabilitating and modernizing irrigation schemes, increasing allocation efficiency, regularizing water titles, and strengthening managerial capacity of user groups.
El Salvador	<i>Agricultural Sector Reform and Investment Project</i>	Promotes sustainable agricultural technology through research and extension for small farmers, including technical assistance and training in soil conservation.
Mexico	<i>Medium-Size Cities Urban Transport Project</i>	Aims to reduce the environmental impacts of urban transport operations by strengthening implementing agencies for environmental controls, enforcing environmental standards, and reducing traffic congestion.
	<i>Transport Air Quality Management Project (IBRD \$220 million)</i>	Supports a comprehensive program to reduce air pollution and control increases in emissions of nitrogen oxides, volatile organic compounds, carbon monoxide, lead, and particulate matter from transport sources; develops a policy framework to support transport and air quality objectives; improves the scientific base underlying the development and management of the air quality program; and strengthens the institutional capacities to plan and implement air quality programs effectively during the long-term.

<i>Country</i>	<i>Project</i>	<i>Environmental component</i>
Paraguay	Third Rural Water Supply and Sanitation Project	Reduces contamination of groundwater by providing and improving on-site sanitation and water supply systems as part of a larger effort to improve health conditions for about 250,000 rural residents.
Venezuela	Highway Management Project	Provides technical assistance and training to help establish government capacity to develop, implement, and monitor environmental standards and guidelines for roads.
	<i>National Parks Management Project (IBRD \$55 million)</i>	Aims to strengthen the management and protection of twenty national parks, two natural monuments, two wildlife refuges, and seven urban recreational parks. Supports applied environmental research to generate knowledge about ecology of the parks; promotes environmental education at regional and local levels to disseminate information and promote community participation in environmental protection; and provides training and technical assistance to implementing institutions.

Annex C. Projects with
Full Environmental
Assessment Approved
in Fiscal 1993



OD 4.01: "Environmental Assessment" requires Bank staff to classify Bank-financed investment projects according to three environmental assessment categories depending on the type, location, sensitivity, and scale of the proposed project, as well as the nature and magnitude of its potential impacts. Category A projects are those likely to have significant adverse impacts that may be sensitive, irreversible, and diverse and require a full EA. Category B project impacts are not likely to be as sensitive, numerous, or diverse as category A. These projects undergo environmental analysis and generally do not require a full EA. Projects approved in fiscal 1993 receiving a full environmental assessment (nineteen A category and one B category) are listed below. Dollar figures represent total project cost followed by the amount of Bank financing through IBRD loans or IDA credit.

<i>Country</i>	<i>Project</i>	<i>EA category</i>	<i>Project description</i>	<i>Total project cost/Bank financing (US\$ millions)</i>
Africa				
Gabon	Forestry and Environment Project	A	Represents first phase of a long-term effort toward rational use of the natural resource base. Aims to restructure and strengthen the capacity of the Ministry of Waters and Forestry and the Ministry of Environment for planning, monitoring, and supervision; make forestry and environment training more applicable to private sector and conservation needs; support forestry and environment research activities; prepare and implement a management plan in the depleted coastal zone area; and support government creation and maintenance of wildlife reserves.	\$38.2/ IBRD \$22.5
Tanzania	Sixth Power Project	A	Helps to meet growing electricity demand and restructures the power sector to promote efficiency and private investment by implementing the first stage of hydroelectric scheme, improving electricity distribution systems, providing management support and training, strengthening state fuel and power companies, and studying power sector structure.	\$440.4/ IDA \$200
Asia				
China	Guangdong Provincial Highways Project	A	Efforts to relieve traffic congestion, upgrade national and provincial roads, and strengthen institutional capacity include construction on new alignments of major highways; transfer of highway technology; development of capacity in highway design, planning, and prioritization; and implementing reforms of highway financing.	\$795.1/ IBRD \$240

<i>Country</i>	<i>Project</i>	<i>EA category</i>	<i>Project description</i>	<i>Total project cost/Bank financing (US\$ millions)</i>
China <i>(continued)</i>	Henan Highways Project	A	Improves Henan's road network and strengthens highway sector agencies through expressway construction, rehabilitating provincial roads, providing equipment for highway maintenance and operations (including environmental monitoring), and supporting institutional strengthening and reform in transport services.	\$300.7/ IBRD \$120
	Second Shuikou Hydroelectric Project	A	Helps provide reliable and economical supply of electricity by supporting completion of the Shuikou Hydroelectric Scheme and providing design, construction, and management services; institutional strengthening and power price reform; and technical assistance, training, and research for planning, management, and energy storage.	\$321/ IBRD \$100
	Shanghai Port Restructuring and Development Project	A	Assists in the long-term development of port capacity and increased efficiency by formulating and implementing an action plan for port facility restructuring, including dust and noise control and waste management facilities; provides new cargo handling equipment; funds construction of new terminals; and provides technical assistance and training.	\$424.3/ IBRD \$150
	Taihu Basin Flood Control Project	A	Assists in flood control, improved drainage, protection of water quality, and increased water supply by widening and deepening waterways and rivers, improving dikes, and strengthening institutional capacity for water-related management and monitoring.	\$497.3/ IBRD \$100/ IDA \$100

<i>Country</i>	<i>Project</i>	<i>EA category</i>	<i>Project description</i>	<i>Total project cost/Bank financing (US\$ millions)</i>
China <i>(continued)</i>	Tianhuangping Hydroelectric Project	A	Develops least-cost solutions for meeting peak power demand in the East China power system, including construction of hydroelectric power plant, installment transmission lines, and reinforcement of existing power transmission network; supports sector policy reforms and promotes private sector development; provides construction management, engineering services, and technical assistance.	\$720.3/ IBRD \$300
India	NTPC Power Generation Project	A	Helps to meet energy needs by increasing generating capacity of National Thermal Power Corporation (NTPC) power stations, supporting private sector joint venture operations, and implementing an NEAP that includes policies for environmental upgrading of NTPC plants; provides training and technical assistance to strengthen NTPC's environmental, resettlement, and rehabilitation management capability.	\$848/ IBRD \$400
	Renewable Resources Development	A	Promotes commercialization of renewable resources technologies by financing private sector investments in alternate energy subprojects, including irrigation-based small hydros, wind farms, and solar photovoltaic systems; expanding bagasse-based paper mills; and creating marketing and financing mechanisms for the sale and delivery of alternate energy systems. Includes technical assistance for institutional development and promotion of renewable energy technologies. GEF component supports development of wind, solar, and photovoltaic capacity and provides technical assistance components.	\$450/ IBRD \$75/ IDA \$115

<i>Country</i>	<i>Project</i>	<i>EA category</i>	<i>Project description</i>	<i>Total project cost/Bank financing (US\$ millions)</i>
Korea, Republic of	Kwangju and Seoul Sewerage Project	B	Aims to reduce pollution in two major rivers and the western coastal waters by expanding wastewater treatment facilities in Kwangju and Seoul, supporting institutional development for wastewater management, and promoting innovative technological and policy initiatives for water conservation.	\$530.7/ IBRD \$110
	Petroleum Distribution and Sector Management Improvement Project	A	Aims to improve efficiency, safety, and reliability of petroleum supply and distribution system by constructing a pipeline network for transport and facilities for storage, loading, and unloading petroleum products; initiates a study on energy conservation and preparation of an implementation action plan; provides technical assistance and training to improve sector institutions' management capacity.	\$809.7/ IBRD \$120
Thailand	Bongkot Gas Transmission Project	A	Increases the gas supply capabilities by expanding the gas pipeline transmission system, strengthening the institutional functioning of Petroleum Authority of Thailand, and making more efficient use of capital resources in the gas sector through annual review of the authority's investment program.	\$370/ IBRD \$105

<i>Country</i>	<i>Project</i>	<i>EA category</i>	<i>Project description</i>	<i>Total project cost/Bank financing (US\$ millions)</i>
Europe and Central Asia; Middle East and North Africa				
Egypt	Private Sector Tourism, Infrastructure, and Environmental Management Project	A	Provides financial support for water supply, sewerage, solid waste collection, and disposal facilities for existing tourist resorts; provides technical assistance and training to develop environmental guidelines and enforce environmental rules; and helps to strengthen institutional framework for environmentally sound future developments. GEF component supports the development and implementation of a coastal zone environment management plan for the Red Sea coast.	\$805/ IBRD \$130
Russia	Oil Rehabilitation Project	A	Supports efforts to reduce the decline of oil production and exports in the near term by rehabilitating and drilling oil wells, replacing transport lines to reduce leakage, providing facilities to recover hydrocarbon liquids and reduce flaring and CO ₂ and particulate emissions, and strengthening technical and managerial capacities and financial viability of selected oil producing enterprises.	\$1,035/ IBRD \$610
Latin America and the Caribbean				
Argentina	Yacyreta Hydroelectric Project II	A	Helps provide an efficient supply of energy, tighten environmental protection, and improve handling of social aspects in the area by implementing the first generating units of the Yacyreta power plant and the resettlement and environmental management programs; strengthens government capacity for resettlement; and encourages private capital participation in the energy sector.	\$1,488.3/ IBRD \$300

<i>Country</i>	<i>Project</i>	<i>EA category</i>	<i>Project description</i>	<i>Total project cost/Bank financing (US\$ millions)</i>
Brazil	Minas Gerais Water Quality and Pollution Control Project	A	Helps recuperate environmentally deteriorated river basins through improved flood control and urban drainage; the collection, treatment, and disposal of municipal and industrial sewage and solid waste; strengthened environmental protection and water basin management; and the institutional strengthening of the State Environmental Agency.	\$307.6/ IBRD \$145
	Water Quality and Pollution Control Project	A	Reduces current levels of water pollution and preserves water quality through river regularization and flood control drainage, provision of basic sanitation services, and collection and disposal of solid waste; helps establish policy for water pollution control and create water basin management units; develops the financial capacity to provide services; and sets up project preparation facilities to help start water pollution control projects in the most congested urban areas in Brazil.	\$494/ IBRD \$245
Chile	Irrigation Development Project	A	Improves operation and efficiency of irrigation schemes by rehabilitating and modernizing existing irrigation schemes, providing technical assistance to small farmers for agricultural development, and providing support to regularize water titles and strengthen user groups' technical and administrative capacities.	\$118.7/ IBRD \$45

<i>Country</i>	<i>Project</i>	<i>EA category</i>	<i>Project description</i>	<i>Total project cost/Bank financing (US\$ millions)</i>
Jamaica	Energy Sector Deregulation and Privatization Project	A	Provides increased power generation capacity and support for private sector investment by financing installment of new power plants, supporting the government's deregulation and privatization program in the energy sector, establishing the Private Sector Energy Fund, and developing the regulatory framework for power sector operation.	\$165.1/ IBRD \$60

Annex D. GEF Investment Projects Approved in Fiscal 1993

This annex provides details on GEF investment projects approved from July 1, 1992, to June 30, 1993. GEF investment projects are managed by the World Bank. Dollar figures represent grant financing from the Global Environment Trust Fund (the "core fund" of the GEF) and are a portion of the total project cost.

<i>Country</i>	<i>Project</i>	<i>Environmental components</i>
Africa		
Congo	Wildlands Protection and Management Project (\$10 million)	Aims to protect biological diversity by establishing appropriate institutions for conservation activities, including a trust fund to contribute to the project's financial sustainability, and developing rational management plans for reserves, and alternative activities for local populations to ensure the long-term protection of the reserves.
Ghana	Coastal Wetlands Management Project (\$7.2 million)	Helps to identify, monitor, and manage common resources that benefit human and avian populations by supporting the Department of Game and Wildlife of the Ministry of Lands and Natural Resources management of the coastal wetlands program; finances boundary surveys and demarcation, the construction of observation points and an education and research center, and activities for habitat improvement and community development; and finances effluent treatment and disposal.

<i>Country</i>	<i>Project</i>	<i>Environmental components</i>
Seychelles	Biodiversity Conservation and Marine Pollution Abatement Project (\$1.8 million)	Supports restoration and protection of the Aldabra ecosystem by developing monitoring and conservation programs and promoting international research on Aldabra, implementing comprehensive management plans to restrict or prohibit the exploitation of marine turtles; and supports improved port capacity to handle ship wastes and enable compliance with the requirements of the MARPOL Convention.
Asia India	Alternate Energy Project (\$26 million)	Demonstrates potential commercialization of wind energy and solar photovoltaics by supporting development of about 85 MW of installed capacity of wind generators largely by the private sector and a marketing program for the initial deployment of solar photovoltaic systems for efficient lighting, water pumping, and rural community services, and providing technical assistance to build up a photovoltaic promotions and awareness campaign for rural consumers.
Thailand	Promotion of Electricity Energy Efficiency Project (\$9.5 million)	Aims to build institutional capacity to deliver energy services. Provides user and manufacturer incentives and consumer education to influence practices and attitudes toward energy-efficient technologies, develops efficiency standards and testing capabilities to control and monitor efficiency improvements, develops building and appliance codes for minimum efficiency standards, and pursues technological improvements and their adaptation to local conditions.

<i>Country</i>	<i>Project</i>	<i>Environmental components</i>
Europe and Central Asia; Middle East and North Africa		
Belarus	Forest Biodiversity Protection (\$1.0 million)	Support country efforts to protect forest ecosystems, providing institutional support to manage biodiversity conservation and investments in air and soil monitoring equipment, geographic information systems equipment, protected area planning, training, and extension services.
Egypt	Red Sea Coastal and Marine Resource Management Project (\$4.75 million)	To protect biodiversity and prevent pollution in the Red Sea, project develops a coastal zone management plan; strengthens the capacity of government agencies for environmental assessment and monitors and enforces rules and regulations on marine pollution control; manages recreational activities to protect coral reef habitats and promote training, public awareness, and sustainable visitor use; establishes marine protected areas and prepares operational plans; and reviews, monitors, and evaluates the project to ensure achievement of biodiversity and pollution prevention goals.
Turkey	In Situ Conservation of Genetic Diversity Project (\$5.1 million)	Aims to test and develop a new approach to conservation of genetic diversity by identifying and establishing in situ conservation areas to protect genetic resources and the wild relatives of important indigenous crops and forest tree species. Provides for sustainable conservation of cereals, horticultural crops, medicinal plants, forest trees, and pasture grasses and legumes through an integrated ecosystem approach and develops the institutional capacity to prepare and implement a national strategy for in situ conservation.

<i>Country</i>	<i>Project</i>	<i>Environmental components</i>
Latin America and the Caribbean		
Bolivia	Biodiversity Conservation Project (\$4.5 million)	To ensure protection of diverse and threatened ecosystems, the project supports the organization, implementation, and follow-up of the National System of Protected Areas; provides assistance for existing protected areas and the establishment of new priority protected areas; develops alternative management systems of natural resources in buffer zones; strengthens monitoring and evaluation capacities; and provides administrative support to the project coordinating unit.

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COMMENT ON "INFORMATION FLOWS AND DISCRIMINATION IN LABOR
MARKETS," BY FOSTER AND ROSENZWEIG

Nancy Birdsall

This carefully prepared paper makes imaginative use of the limited information available to employers about their employees. (I'm tempted to say that if the employers were as clever as the researchers in sorting out the characteristics of the employees, there would be no information problem in these labor markets.)

Yet I have a sense of dissatisfaction about this paper. The authors do well what they set out to do; they assess and dissect the effects of poor information in labor markets in low-productivity, rural economies. But they do not broaden our understanding of why economies are underdeveloped, nor of what could be done to spur the development process. The paper brings the full panoply of sophisticated economic thinking and careful econometrics to a question that may not be the correct one—a bit like hitting a small nail with a sledgehammer. Is this a fruitful area of research, either for improving our fundamental understanding of development or for guiding development policy? I do not think so. This may reflect a failure of my own imagination, and I'll return to that point later. But first let me illustrate why I do not think so.

Findings in the paper indicate that at least two problems can arise because of employers' poor information about their employees: job immobility and statistical discrimination. These two problems impinge on the smooth and efficient operation of the labor market in poor rural areas. But note that the efficiency costs which these problems create are largely static—they are inefficiencies that make low-productivity agriculture marginally lower than it might otherwise be. Are these static costs the fundamental development problem or question? As with the small Harberger triangles that Richard Freeman has mentioned, the static costs studied in this paper under a high-powered microscope amount to asking, why is per capita income in rural India \$100 a year, when with a one-time gain from eliminating static inefficiency it might rise to \$102 or \$103 a year?

In contrast, we could address questions of efficiency costs in a more dynamic sense. Why is productivity growth in rural India or in the Philippines 1 or 2 percent a year instead of the 6 or 10 percent recorded in East Asian countries

Nancy Birdsall is director of the Country Economics Department of the World Bank.

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