A Newsletter on Recent Evaluation Findings and Methods

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Focus on the Environment

Overview

Early A.I.D. environmental programs focused more on "outputs" than on "outcomes," leaving little record of what they accomplished or what difference they made. Past evaluations of these environmental and natural resource management projects generated only sketchy information on what has worked well and why. As a result, the extent of Agency environmental initiatives has been underreported, particularly to those concerned about the effectiveness of A.I.D. development assistance programs. Moreover, the Agency has been unable to profit fully from its past experiences both in setting priorities for future programs and in learning from lessons that can further program performance.

The articles in this issue of ***A.I.D. Evaluation News*** provide an update on what the Agency is doing to better document the performance and impact of its growing assistance activities concerning the environment and natural resource management. The article "A.I.D. Environmental Strategy" introduces the Agency's new Environmental Strategy, which provides a road map for reaching the goal of environmentally sustainable development. The article describes specific environment and natural resource problem areas and summarizes how A.I.D. central and geographic bureaus and field Missions are organizing to address those problems.

The "Assessment of A.I.D. Environmental Programs" reviews the issues highlighted in the first phase of an ongoing extensive review of Agency

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environmental and natural resource project evaluations. The first findings of the assessment point to the need for a much more systematic tracking of the impact of A.I.D. environmental interventions. "Forestry Development—A Review of World Bank Experience" summarizes one type of such systematic evaluation.

Action on environmental programs, of course, is in the field, and "A.I.D. Regional Environment Initiatives" highlights what the major A.I.D. regional bureaus are doing to implement the new Environmental Strategy and to monitor the performance of A.I.D. environmental programs.

One of the barriers to a more tangible measurement of the impact of A.I.D. environmental programs is the lack of any framework for "valuing" the environmental conditions and natural resources of developing countries. "'Green Accounts'—Measuring Natural Resource Depletion and Environmental Degradation" presents an increasingly popular approach to incorporating the costs and benefits of natural resource and environmental changes into estimates of economic growth and development. Initial applications of green-accounts procedures suggest that those developing countries that have been living off the exploitation of their natural resources (e.g., forests and fisheries) have in fact had much lower economic growth rates than previously reported.

Another promising mechanism for determining the environmental impact of A.I.D. programs is PRISM—the Agency's new Performance Information System for Strategic Management. "Tracking A.I.D.'s Environmental Programs" describes the PRISM process and details its application to environmental and natural resource programs.

Finally, ***A.I.D. Evaluation News*** reports on other Agency activities that also contribute to better monitoring and reporting of its environmental programs: a special centrally funded project to examine the impact of policy incentives on the environment, a newly created environmental and natural resource information center, a training program to acquaint Agency development officers with the benefits of lessons learned from past environmental programs, and an automated retrieval system for more ready access to the array of literature on past Agency environmental programs.

The A.I.D. Environmental Strategy*

*by Jeff Schweitzer, Office of Strategic Planning,** and Phillip Church, Center for Development Information and Evaluation, Policy Directorate*

This year, A.I.D. will issue a new strategy for achieving environmentally sustainable development. The A.I.D. Environmental Strategy revises, refines, and updates previous environmental guidelines, dating from 1976, when the Agency adopted formal environmental regulations, including the Agency's 1988 Policy Paper on Environment and Natural Resources and the 1990 Environment Initiative.

Whereas the 1990 Environment Initiative discusses the history of the Agency's concern for the environment over the past two decades, the Environmental Strategy prepares A.I.D. for the future. It derives from the Agency's concern for addressing environmental issues in its development assistance programs and reconfirms environmental protection as a high priority for A.I.D. Moreover, the Strategy ensures that the Agency will, as an integral component of its development assistance programs and

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Phillip E. Church—Guest Editor
Farah Ebrahimi—Managing Editor
Pamela McDade—Publication Coordinator

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within current and anticipated fiscal and political realities, assist host country efforts to protect the environment.

The Environmental Strategy outlines the rationale for A.I.D. addressing environmental concerns, identifies the major environmental problems threatening development, sets forth the criteria for focusing resources to address the most critical issues, establishes guidelines for selecting appropriate interventions, and identifies priority approaches to environmentally sound development, including those unique to each A.I.D. geographic region.

Rationale for the Environmental Strategy

The A.I.D. Environmental Strategy is premised on the increasingly evident linkages between the environment, economic growth, and human welfare. The Strategy recognizes that wise management of the natural resource base is an absolute requirement of any successful development program, because environmental degradation impairs economic growth and deteriorating economies exacerbate and accelerate environmental degradation.

The Environmental Strategy confirms the belief that balance among competing environmental, social, political, and economic interests is best accomplished in open markets and democratic societies, where people are empowered to effect reasonable solutions through their market choices and political will. But open markets and democratic societies by themselves cannot achieve environmentally sound growth; conscious effort and clear focus are also required.

The recent resurgence of democracy throughout the world bodes well for the environment. So, too, does the growing recognition among developing countries and the donor community that heavily centralized government decision-making is not a satisfactory approach to solving many environmental issues, which by their nature can be addressed effectively only at the local level.

Five Constraints to Environmentally Sustainable Development

The A.I.D. Environmental Strategy groups into five major categories the universe of environmental problems that challenge the developing world and most directly affect A.I.D.'s development goals and objectives. An area of emphasis for the Agency not specifically identified in the five categories, but receiving considerable attention, is global climate change. But because almost all A.I.D. interventions directed toward global climate change involve activities in the area of energy efficiency, renewable energy, forestry, and agriculture, no separate area of emphasis has been added (see *Global Climate Change, Guidelines for A.I.D. Missions and Bureaus*, 1991). The five categories are as follows:

- Loss of tropical forests and other critical habitats necessary for biological diversity
- Unsustainable agricultural practices
- Environmentally unsound energy production and use
- Urban and industrial pollution
- Degradation and depletion of water and coastal resources

These problems threaten the economic progress of developing countries, deplete biological and other natural resources, diminish the health and quality of human life, and have impacts well beyond national boundaries, often with global consequences. The Environmental Strategy positions A.I.D. to help developing countries address these vital challenges. It draws on the Agency's long history of attention to the environmental dimensions of development, its access to a comprehensive range of highly qualified career staff and external consultants, and its network of field Missions stationed throughout the developing world.

Selecting From Among Environmental Problems

No single donor can effectively address, in every country, the broad range of environmental issues encompassed within the five major categories of environmental threats. Focus is essential. The Strategy offers the following criteria to help channel Agency resources. Its aim is to direct attention to priority environmental constraints in geographic regions where A.I.D.'s intervention is most likely to have a significant impact.

Chronology of A.I.D.'s Environmental Programs

1961 Congress approves the Foreign Assistance Act (FAA) establishing A.I.D. FAA gives priority to increased agricultural food production and improved human health, both of which are linked with natural resources and the environment.

1969 Congress passes the National Environmental Policy Act (NEPA) "to promote efforts that will prevent or eliminate damage to the environment and biosphere." The NEPA also creates the Council on Environmental Quality.

1972 A.I.D. participates in the Stockholm Conference on the Human Environment.

1973 A.I.D. begins providing environmental training for Agency engineers and begins a program of environmental review of all infrastructure projects.

1976 With NEPA as a guide, A.I.D. adopts procedures for environmental review of all new Agency activities.

1977 Congress amends FAA, giving the President authority to strengthen the capacity of developing countries to manage their natural resource base and examine the environmental consequences of development actions.

1978 A.I.D. co-sponsors a U.S. Strategy Conference on Tropical Deforestation. Foresters are hired within the Agency ranks and policy statement on pesticide use is issued.

1980 A.I.D. creates new Forestry, Environment and Natural Resources office.

1981 Congress amends the FAA (Section 118) to require environmental assessments for any A.I.D. project significantly affecting the environment.

1983 Congress amends the FAA to include the preservation of endangered species (Section 119) as an important objective of U.S. development assistance. A.I.D. releases policy determinations on environment, natural resources, and forestry and issues its first Sector Strategy on the Environment.

1984 A.I.D. issues its Sector Strategy on Forestry. Congress mandates that the Overseas Private Investment Corporation's (OPIC) investment activities be consistent with FAA Sections 118 and 119.

1986 Congress amends FAA to give further priority to conservation of remaining natural forests and instructs A.I.D. to prepare annual reports documenting how A.I.D. is implementing this mandate. Congress further directs A.I.D. to monitor the economic and environmental soundness of projects and programs funded by the multilateral development banks.

1988 A.I.D. incorporates environment and natural resource concerns directly into its guidelines for standard project analysis and design.

1990 A.I.D. launches a new Environment Initiative setting annual funding targets at $400 million for programs and projects directly related to reversing environmental degradation and improving natural resource management. Congress earmarks funds for programs in tropical forestry and biological diversity and for global climate change initiatives.

1992 A.I.D. issues a new Environmental Strategy.

- ***Significance of the problem:*** Environmental problems that pose significant constraints to long-run development. This category includes those national environmental problems that have transnational implications (e.g., tropical deforestation and global warming), where coordinated actions among countries could potentially produce significant progress in resolving those problems.
- ***Urgency of the problem:*** Environmental problems that, if not addressed immediately, will likely result in significant threats to human health or irreversible damage to the natural resource base.
- ***Local capacity and commitment:*** Environmental problems that developing countries themselves have identified as priorities and are capable of and committed to addressing.

Selecting From Among Environmental Solutions

The Environmental Strategy encourages the Agency to draw on both well-established and new solutions to effect change in focus areas. The Strategy emphasizes foremost activities that attack root causes of environmental degradation, stressing the prevention of rather than reaction to problems. In addition, the Strategy directs the Agency to consider the following:

- ***Support for local empowerment and public participation.*** An essential step toward sustainable management of natural resources is providing local people with access to resources, education, and information to influence environmental issues that affect them. Particularly important to successful development is the involvement and participation of local stakeholders in project planning, implementation, benefit distribution, monitoring, and evaluation.

- ***Improvement of the quality of data on the host country resource base and on effective and sustainable technical interventions.*** Although the Agency's goal is environmentally sustainable development, many developing countries lack the knowledge base, techniques, and practices necessary to effectively address environmental problems. A.I.D. programs can play a leading role in strengthening the knowledge base of developing countries with regard to their environmental problems and help them develop solutions that reflect current scientific thought and host country empirical experience.
- ***Collaboration with other environmental and developmental organizations.*** The Strategy builds on the Agency's history of leadership in promoting collaboration among donors, other U.S. Government agencies, the private sector, and local, national, and international nongovernmental organizations (NGOs). In particular, the Strategy emphasizes work with NGOs, which often provide useful communication links among A.I.D., host country governments, and local communities. Moreover, NGOs assist A.I.D. in delivering services and training local groups, and they play a significant role in influencing community and national decision-makers.
- ***A regionwide approach to environmental issues, where appropriate.*** Many environmental problems transcend national boundaries and have regional or global impacts (e.g., climate change, acid rain, and pollution of international waters). The Strategy urges addressing such problems, to the extent possible, through regional cooperation.

Implementing the Environmental Strategy

In implementing environmental programs, the Strategy advocates three broad categories of development program activities:

- Strengthening human and institutional capacity and building public awareness
- Reforming unsustainable economic and environmental policies and procedures
- Encouraging private sector participation in promoting environmentally sound development activities

The Environmental Strategy also endorses the three approaches that the Agency currently uses to accomplish its strategic objective of environmentally sustainable development:

- Ensuring, through appropriate environmental review, that all A.I.D.-funded activities are environmentally sound
- Integrating environmental considerations broadly into A.I.D.-supported sectors and programs
- Supporting activities designed primarily to protect and improve the management of the environment and to promote the wise use of natural resources

Finally, the Strategy stresses that effective integration of environmental protection and development are possible only if integration is based on a solid understanding of the fundamental environmental constraints to growth. To ensure that the Agency's Strategy has the desired effect, and to evaluate the effectiveness of the various approaches to sustainable development, the Strategy calls for identifying indicators of performance against which impact and progress can be measured. While A.I.D. will focus on environmental problems that have both national impacts and global implications, performance indicators will likely be most useful in measuring impacts at the local or national levels.

Regional Variations of the Environmental Strategy

A.I.D. will carry out the Environmental Strategy through its Central Research and Development Bureau, its six regional bureaus (Africa, Asia, Europe, Latin America and the Caribbean, the Near East, and the Newly Independent States [NIS] of the former Soviet Union), and field Missions and offices in more than 80 countries. The environmental strategies of the R&D and regional bureaus build on the common guidelines, criteria, and approaches defined in the Agency Environmental Strategy, but their focus will be on priority environmental problems unique to their geographic area or field of concentration.

Africa

The Africa Bureau's environmental strategy is defined in the Plan for Supporting Natural Resource Management in Sub-Saharan Africa, which guides A.I.D. efforts to improve natural resource management in Africa. The Plan focuses Africa Bureau programming on two critical problem areas: (1) changing unsustainable agricultural practices and (2) reducing loss of tropical forests and other critical habitats to sustain biological diversity. The Plan also focuses on the technical priorities of vegetation loss or degradation, soil erosion, fertility decline and declines in biological diversity, and integrated pest management—all areas in which the United States has a comparative advantage. To integrate

natural resource program elements into Mission portfolios, the Plan divides African countries into priority groups.

First priority countries are those in which natural resource management is emphasized. In those countries the Missions have comprehensive natural resource programs. Second priority countries are those in which the Missions have more limited natural resource programs concentrated on one or more technical priorities. In the remaining countries, the Missions generally have small humanitarian or political programs and do not undertake bilateral natural resource management programs. However, in those countries there may be regionally supported analytical or training activities conducted through NGOs to address important natural resource management issues.

Asia

Asia's relatively high economic growth and population expansion have led to urban and industrial pollution and the destruction and degradation of the region's renewable natural resources. To tackle the key environmental problems of the region, the Asia Bureau has identified four priority issues for the 1990s: (1) loss of tropical forests and biological diversity, (2) pollution by urban centers and industry, (3) degradation and mismanagement of water and coastal resources, and (4) adverse environmental impacts of energy development and energy shortages and inefficiencies.

Each Asia Mission has selected to address a subset of these four problem areas. In addition, a recently announced Presidential Initiative, the U.S.-Asia Environmental Partnership (US-AEP), provides a regional coalition of U.S. and Asian businesses, governments, and community groups, which work together to reinforce the Asia Bureau's national environmental efforts. U.S.-AEP focuses on four components: fellowships and training, technology cooperation, environment and energy infrastructure, and a regional biodiversity conservation network.

Europe

The countries of Central and Eastern Europe (CEE) are suffering the effects of some of the world's worst pollution: increased respiratory diseases and mental retardation, shortened life spans, rivers too polluted for industrial use or drinking (50 percent of Poland's rivers), and the degradation of conservation areas. As CEE countries undertake the structural adjustments necessary to transform their centrally planned, noncompetitive economies into market-based economies, CEE and the donor community must address these environmental issues.

A.I.D. environmental objectives in CEE countries are to strengthen the local capacity to improve environmental conditions in a market economy and to correct the root causes of environmental degradation: (1) policy and price distortions, (2) state monopolies and lack of a private sector, (3) institutional weaknesses, (4) lack of information about environmental conditions, and (5) lack of public participation in environmental management.

CEE program priorities in order of importance are: (1) to reduce immediate threats to human health, (2) to support economic and structural reform, and (3) to protect the remaining important conservation areas. In CEE countries, A.I.D. will concentrate on two of the major environmental problem areas: inefficient energy production and use and urban and industrial pollution. Conservation will receive more limited support.

Latin America

The Bureau for Latin America and the Caribbean (LAC) is guided by the following cross-cutting, strategic principles: (1) attack root causes underlying environmental degradation, stressing prevention of problems; (2) integrate environmental considerations broadly into A.I.D.-supported sectors and programs; (3) promote economic and environmental policies for sustainable development; (4) strengthen institutions, including NGOs and government agencies for resource management; (5) strengthen education and training in all areas of environmental management; (6) build participation and empowerment of the public in environmental initiatives; (7) strengthen the role of the private sector in environmental management and prevention of resource degradation; (8) promote research, information exchange, and appropriate technology transfer for sustainable development and environmental management; (9) strengthen implementation of Agency environmental procedures; and (10) promote donor collaboration and coordination for sustainable development and environmental management.

The LAC Bureau will work in all five environmental problem areas but will focus resources principally on the following: conservation of tropical forests and other critical habitats for biological diversity, sustainable agriculture, and improved man-

agement and protection of water and coastal resources. The LAC Bureau will also be engaged in the other two areas, promotion of environmentally sound energy production and use and reduction of urban and industrial pollution, on a more limited basis where these problems are particularly significant constraints to development.

Near East

The most critical environmental challenges facing the arid Near East region are primarily associated with water resources. Water, as well as other natural resources, is being used in an increasingly unsustainable manner because of unrestrained urban and industrial growth, a poor appreciation of conservation and environmental protection, and inadequacies in technical and regulatory infrastructure to protect and manage resources.

The region has reached a critical crossroad in its history, and individual countries are beginning to recognize the strong relationship between sound environmental and natural resource management and economic development. This growing awareness provides an excellent opportunity for promoting sustainable economic growth through sound management of natural resources and the environment.

The priority issues of environment and natural resources for the Near East Bureau are embodied in four of the five critical environmental constraints to development: (1) degradation and depletion of water resources, (2) urban and industrial pollution, (3) environmentally unsound energy production and use, and (4) unsustainable agricultural practices.

The Research and Development Bureau

The A.I.D. Research and Development Bureau plays both a technical support and research role for regional bureaus and field missions through a range of centrally funded initiatives that mobilize and direct the Agency's agriculture, population, energy, human resources, nutrition, economic policy and institutional development programs in implementing the Environmental Strategy. The R&D Bureau's energy, environment and natural resources offices take a transregional and global perspective on those environmental problems—climate change, and biological diversity—that extend beyond country and regional borders. Through its Women in Development Office, the R&D Bureau also supports improved awareness of gender concerns in implementing A.I.D. environment and natural resources management programs.

Conclusions

Development can occur only if the natural resource base on which it depends is carefully managed. In recognition of this critical linkage, A.I.D.'s Environmental Strategy integrates environmental and natural resource concerns into all of its developmental activities. It also outlines approaches for working with developing countries to better protect their environments and manage their natural resources.

**The final draft of the A.I.D. Environmental Strategy is currently being prepared for public distribution. Draft copies are available from Martin Hanratty, Office of Strategic Planning, Policy Directorate. Regional strategies are available from the respective geographic bureau environmental coordinators.*

***Jeff Schweitzer is currently Senior Policy Analyst for International Affairs at the White House Science Office.*

Development Experience Reviews

Assessment of A.I.D. Environmental Programs

by Fred Sowers, Labat-Anderson Incorporated, and Phillip E. Church, Center for Development Information and Evaluation

This year's United Nations environmental summit has underscored the linkage between economic vitality and environmental well-being. Recognition of this convergence underlies a recent CDIE review of A.I.D. environment and natural resource management (E/NRM) projects and programs. The review, which covers more than 140 Agency-funded environmental activities, marks the initial step in a 2-year assessment that is part of A.I.D.'s 1992-1994 Evaluation Agenda. Based on the findings, CDIE will launch a series of field investigations to explore how the Agency's development assistance programs can have the greatest positive environmental impact.

Although the recent A.I.D. Environmental Initiative and Strategy have drawn attention to the growing importance of environmental issues, the Agency's record of involvement in environmental activities has a long history. For example, from its inception following the drought of 1968-1973, the A.I.D. Sahel Development Program actively addressed desertification and natural resource management. But until recently, A.I.D. programs and projects were seldom designed with an environmental focus; rather E/NRM concerns were woven into or grafted onto other development assistance activities. Beginning in the late 1970s and continuing through the 1980s and early 1990s, A.I.D. significantly increased funding of activities directly aimed at meeting the environmental challenges facing developing countries. More and more projects and programs are designed with an environment focus, wherein environmental goals, objectives, and purposes are explicitly stated.

A.I.D. environmental programs embrace a diverse realm of activities and issues that have as their objectives the improvement or sustainable use of natural resources and the treatment of problems associated with their misuse. Consequently, the CDIE review of Agency evaluation literature covers the period between 1980 and 1990, when A.I.D. began to design programs and projects with an environmental focus or component.

To facilitate analysis, CDIE divided the E/NRM activities into several major categories, reflecting the concerns identified in the Agency's current Environmental Strategy:

- ***Sustainable agriculture***
  Agroforestry
  Integrated pest management (IPM)
  Range/livestock management
  Sustainable agriculture, soils, and watershed management
- ***Forestry and biodiversity***
  Tropical forestry
  Protected areas and buffer zones
  Sustainable timber management
- ***Energy development***
  Energy conservation and efficiency
  Alternative and renewable energy production
  Global climate change
- ***Urban and industrial pollution***
  Solid waste and wastewater treatment
  Air quality
- ***Water and coastal resources***
  Capture fisheries development
  Water management
  Wetlands and coastal zone management

The dimensions of economic policy, institutional development, education, human resources, and cultural traditions and values crosscut these specific fields and lend unity to the findings and proposed design for the field assessment.

Patterns of Agency Support

Figures 1 and 2 provide a breakdown of the funding allocations for those A.I.D. E/NRM projects included in the CDIE evaluation reports review. The reader is cautioned that the regional and sectoral breakdowns do not reflect actual allocations for the 1980-1991 period of the review because only projects with completed evaluations are included in the tabulations. Still the figures reveal the significant and diverse range of environment and natural resources activities supported by the Agency. Although not all funds were specifically authorized for environmental activity, some clear patterns

emerge from the breakdown of the Agency's E/NRM funding.

The Africa Region has emphasized sustainable agriculture while the Latin America and Caribbean and Asia Regions show a more balanced allocation among sectors, except for the urban/industrial sector, which is notable by its absence. In contrast, the Bureau for the Near East appears to have concentrated its environmental activities on energy and urban/industrial concerns. When the more than $1.5 billion in authorizations for Egypt's water and wastewater projects are added, the Near East region's unique focus on the urban/industrial sector becomes even more pronounced.

Overall, the Agency's E/NRM portfolio has emphasized energy, environmentally sound agriculture, and forestry and agroforestry. Support for such programs as range management, fisheries, and energy was more evident in the early 1980s but has declined in recent years. Programs to reduce urban and industrial pollution and to improve coastal resource management, with the exception of those in the Near East and Horn of Africa, did not attract significant investment. But evidence shows that as more programs focus on improving environmental quality, the relative underweighting of urban-directed assistance may be changing.

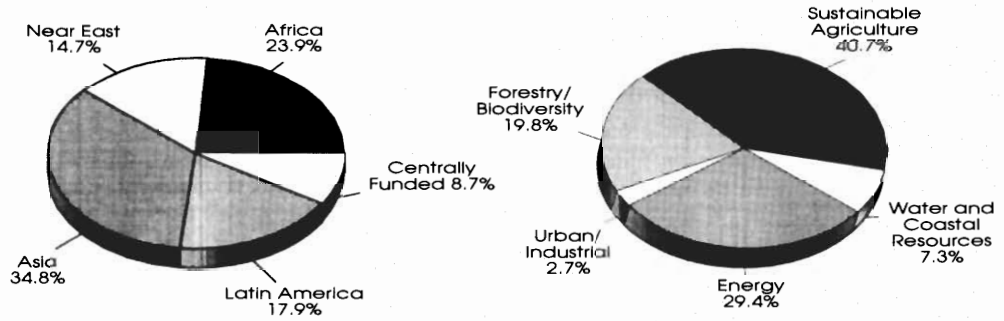
Most of the projects examined did not appear to have been directed at producing measurable environmental improvements, even though some project documents make this claim. For example, a forestry project may have had a goal of increased seedling production and planting, rather than one of reversing environmental degradation through reforestation. Consequently, evaluations were often conducted without specific guidance on measuring the outcomes of E/NRM components. They merely evaluated project results on the basis of nonenvironmental outputs specified in the Project Papers.

The review highlighted two important constraints facing evaluations of environmental projects in developing countries: First, evaluations require historical data series on such basic environmental problems as air and water pollution, deforestation, and fisheries resource depletion, which are sparse in developing countries. Second, for some E/NRM concepts, such as biodiversity and global warming, measurement and monitoring methods have yet to be developed and tested. Consequently, the methodology developed for the CDIE assessment will rely instead on establishing plausible linkages between funded activities, positive biophysical changes, and sustainable increases in rural resource users' production and income. From this vantage, the assessment will ask the following questions for each of the broad strategic areas or sectors outlined above:

- What environmental and natural resource issues has A.I.D. addressed?
- How has A.I.D. addressed these issues?
- What have been the results?

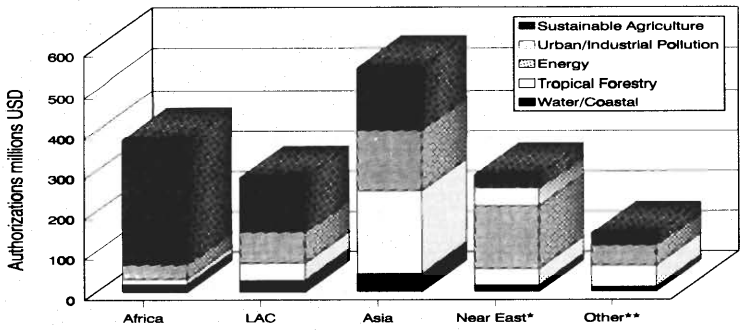
Figure 1. CDIE Review of Environmental Programs, 1980-1991

Regional and Sectoral Funding Breakdown of Projects



Source: CDIE Assessment of Environmental Programs (Egypt water treatment projects not included)

Figure 2. A.I.D. Environmental and Natural Resource Authorizations, 1980-1991



Source: CDIE Environmental Assessment, 1992
*Near East figures exclude Egyptian wastewater projects.
**Refers to centrally funded projects.

Findings

In laying a framework to answer these questions, the CDIE review identified six thematic issues that appear vital to the effective implementation of A.I.D.'s Environmental Strategy. When the fieldwork for this assessment is completed, the results will provide its primary audience—senior Agency and Congressional leadership and A.I.D. program and field staff—with an understanding of the key determinants of performance of A.I.D.-funded programs designed to improve natural resource management and environmental quality.

Institutional Capacity

Nearly all A.I.D. E/NRM projects include activities to reinforce the operations and train the technical and administrative staff of public and private institutions working in environmental and natural resource management. For several reasons, however, the impact of these institution-strengthening efforts has been mixed.

Most A.I.D. E/NRM projects work through public institutions that are characteristically plagued by shortages in human resources, untrained staff, and insufficient operating budgets. But these conditions prevail in most developing country institutions. A trained staff and improved operating procedures do not by themselves appear to result in significant institutional contributions to better resource management or to improved environmental conditions.

What appears to explain institutional performance best is the extent to which institutions have clearly defined mandates and jurisdictions with decentralized authority and operations. E/NRM concerns often cut across government ministerial lines creating confusion or even conflicts of responsibility. Moreover, many environmental problems occur in areas often far removed from the responsible central government agency.

Moreover, although local nongovernment organizations (NGOs) face the same human resource shortages and skills as do public agencies, they appear to have more tangible local impact because of their involvement with stakeholders, more clearly defined roles, and more localized operations. NGOs, however, appear less capable of planning and executing long-term or geographically extensive activities. The review suggests that a mix of public and private organizations capable of mobilizing local participation may be the most effective formula for achieving E/NRM project results.

Awareness and Participation Levels

The Agency has addressed the issues of awareness and participation variously and with mixed results. To develop awareness, A.I.D. has used such mechanisms as conservation education, pilot demonstrations, policy dialogue, and the support of indigenous environmental advocacy groups and NGOs. In some cases, the results have been impressive. For example, in Costa Rica, where more land is now in national parks than under cultivation, it may be possible to associate a very successful conservation education program with the national commitment to an exemplary protected areas program.

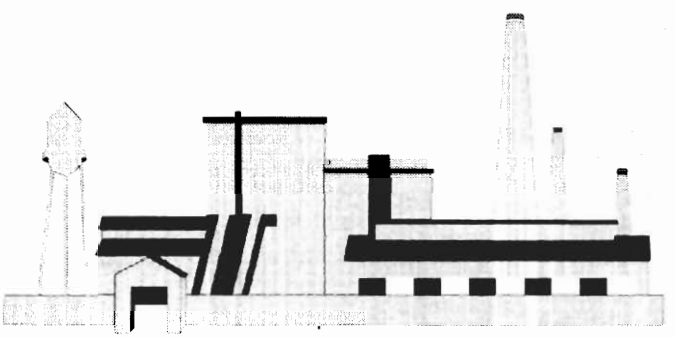
When projects have made local participation central to their orientation, the results have been impressive. For example, natural forest management projects in India and Niger demonstrated that when dysfunctional state control was replaced by local community involvement in protecting, sustaining, and managing forests, environmental degradation appears to have been arrested and in some cases reversed. In contrast, projects that relied on demonstration without participation, as was the case with an environmental conservation demonstration project in Ecuador, the outcome was not as successful, suggesting that sound technologies alone are inadequate to ensure sustainable integration of improved resource management in the local population's culture and practice.

Too often, awareness and participation were directed to government officials, local leaders, and male heads of households, even when women or children were important participants or beneficiaries. In general, gender sensitivity in design and im-

plementation was neglected or inadequately addressed in most E/NRM projects. The assessment must therefore address the issue of involving women more directly in E/NRM programs and assess the differential impact of such programs on women.

Resource Access and Accountability

Equitable access to and responsible management of natural resources are particularly important in the proper management of common property resources, such as fisheries, forests, and rangelands. Projects appeared to be most effective, and were more likely to be sustainable, when communal ownership did not imply open access to resources, but instead limited user rights to groups who accepted responsibility for maintaining the resource. The natural forest management model developed under an A.I.D.-funded project in Niger is an example of such a project. Furthermore, in cases where tenure reform experiments assumed that the indigenous tenure systems were ineffective and in need of replacement, as in the establishment of woodlots for fuelwood and group ranches in Kenya and Tanzania, environmental efforts were more likely to fail.



Experience indicates that sustainable changes in the rules governing access to resources require both time and legal authority. Moreover, such changes are often best supported through policy dialog and policy reform rather than at the project level. For example, in the case of the range management areas in Lesotho, project documents suggest that it will take up to 20 years of outside support before the newly vested local groups through such centrally funded projects as "ACCESS" and "Decentralized Financial Management" have acquired the capacity to manage and regulate access to the designated rangelands responsibly. Elsewhere, projects and new project development have been suspended pending reforms in the overall regulatory context governing tenure and usufruct rights. In recent years, the Agency has supported policy-oriented research to identify appropriate state, private, and individual roles and responsibilities with regard to decentralization, local empowerment, and dispute resolution where tenure and resource access questions are at issue.

Availability of Technology

The development, introduction, transfer, and adoption of new technologies seem as important to natural resource management programs as they have been to agricultural development efforts. The Agency has addressed technology issues at several levels:

- The soundness of the technology for a given problem
- Flexibility in program and project design to permit modification of a recommended technological package
- Research to validate, modify, or replace technologies
- Methods to communicate and extend technologies

For many of the projects reviewed, the scientific soundness and biophysical appropriateness of the technologies being introduced were not issues, but the cultural and economic appropriateness of the technology choice or the mechanism for technology transfer was often critical. Moreover, there are technological areas where the United States has a technological lead or where the Agency has a comparative advantage, but little A.I.D. activity has occurred. For example, the United States has a comparative advantage in improved conventional energy production and reduction of greenhouse gas emissions from coal-fired plants, which could be used to help countries in many parts of the world, including Eastern Europe and the Newly Independent States of the former Soviet Union. Innovative mechanisms for technology transfer, such as private sector partnerships and nontraditional extension (e.g., NGO mass media, farmer to farmer, social marketing), have appeared in recent A.I.D. programs, but it is too early to judge their effectiveness. Ultimately, the most important determinant of performance may be improvement in the *rates of adoption* of new technologies. The CDIE field assessment will examine in what ways different components of specific Agency-funded programs and projects have interacted to accelerate adoption of practices associated with better environmental management.

Policy Setting

Few A.I.D. E/NRM projects evaluated before 1980 addressed the impact of economic and other policy variables on the environment or on the use and management of natural resources. Fewer A.I.D. E/NRM projects included policy reform as an objective for improving the environment or natural resource management. The policy setting was assumed to have a neutral influence. But the evidence is to the contrary. For example, export-led development policies are in place in many A.I.D.-assisted countries, and forest and fisheries products are often important export earners. But export incentives have promoted the exploitation or "mining" of these resources to achieve short-run growth in foreign exchange and national income. Where policy reform has been an objective of improved natural resource management, change has been noticeable. In Indonesia, for example, removal of pesticide subsidies led to more environmentally—as well as economically—sound use of pesticide by rice farmers. However, A.I.D. centrally funded integrated pest management (IPM) activities have aimed at better use of pesticides rather than at fostering alternative environmentally sustainable approaches to controlling crop and livestock pests.

A.I.D. Management Effectiveness

A.I.D. management capacity appears to influence the effectiveness of otherwise well-designed projects. E/NRM projects by their nature are management intensive. They often involve working with several government agencies and NGOs; they require time and effort to raise environmental awareness among project counterparts; their outcomes are difficult to measure and time-consuming to monitor.

Yet A.I.D. is mounting large environmental initiatives in many countries in which it is proposing to station small staff or to reduce staff currently in place (e.g., the European and Newly Independent States of the former Soviet Union and middle-income A.I.D.-assisted countries where steady economic growth has been accompanied by signs of environmental degradation and natural resource depletion). Strong in-country presence appears to be a critical determinant of effective E/NRM performance.

Involvement of and coordination with other donors and technical assistance agencies might resolve this dilemma. Evaluation studies reveal, however, that donor coordination introduces its own management demands and limitations.

Conclusion

In examining past E/NRM projects and programs, the CDIE review helps frame key questions essential to identifying A.I.D.'s effectiveness and comparative strengths and to supporting strategic decisions on allocating development assistance funds to "workable" programs with the greatest impacts. For the Agency's technical and administrative officers, the E/NRM assessment will develop lessons learned and guidelines for the more effective design and implementation of future E/NRM activities.

The CDIE assessment of E/NRM programs is documenting the Agency's history and evolving effort to meet these development challenges. In providing substance to the issues outlined above, the assessment will contribute to the effective planning and execution of the Agency's Environmental Strategy. The assessment will support and give form to the setting of strategic objectives, the refinement of mechanisms for tracking progress, the documentation of program impacts, both positive and negative, and the derivation of benefits from the potential lessons offered by past and ongoing experiences.

Forestry Development: A Review of World Bank Experience

The Operations Evaluation Division (OED) of the World Bank recently completed a review of the Bank's lending activities in the forestry sector. The review, timed to coincide with a new Bank forestry policy, examines a lending portfolio of more than $2.5 billion in projects since the Bank began its forestry programs in 1949. This article highlights the OED forestry review findings and summarizes some of the principal lessons learned that may have direct application in A.I.D. programs.

Until 1978, about 95 percent of World Bank forestry lending went to commercial tree plantations and timber extraction and processing facilities for industrial growth and export. Most of the pre-1978 projects perceived forests as an abundant and underutilized resource and financial capital and technical know-how for forest exploitation as the scarce resources that the Bank could provide to country borrowers.

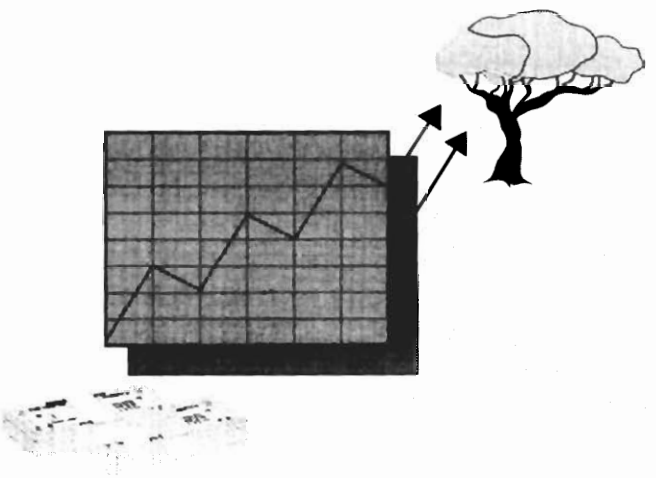
In 1978 the Bank's forestry policy shifted to financing environmental and social forestry projects. The new policy put more emphasis on the living standards of the people in the project areas and on

the sustainability of forest resources. Sustainable forestry development required a set of technical and management skills in which people, not capital, were central. Forests were viewed as the scarce resource, and extraction was in harmony with natural laws and local property rights systems. The Bank review demonstrates that fully satisfactory arrangements for sustainable forestry have yet to be introduced in all forest areas—particularly in those with multiple ownership rights systems and in those that are particularly environmentally fragile.

Overview of Results

The Bank review highlights the following conclusions from its conduct of forestry projects:

Environmental impact. Generally positive environmental impacts have resulted from Bank forestry lending. These benefits include better forest management practices (e.g., land-use patterns, reduced soil erosion, rehabilitation of marginal lands) associated with forest project initiatives. However, the Bank review concludes that forest projects by themselves are not the most effective way to address many environmental problems in developing countries.



Human impact. Forestry projects can benefit many people. For example, community-based social forestry projects have been particularly successful at giving the poor and landless access to employment and such forest products as fuelwood. And they have provided an effective way for small farmers to accumulate capital. But forestry projects have not been as successful in directly benefiting women, because of the limited capacity of many local organizations to deal with women's rights, particularly with regard to ownership of property and economic activity.

Determinants of performance. The factors that determine performance of forestry projects are generally similar to those that determine project performance elsewhere in the economy:

- Careful project preparation with realistic goals and suitable technologies
- Favorable marketing structures and national economic policy regimes for sustainable land use
- Effective management that includes local, people-oriented involvement and multiagency coordination
- Adequate institutional capacity, including land tenure, property rights, and provision for local custom and culture

The Bank review points out that changes in these factors are not readily accomplished through forestry projects alone.

Sustainability. Sustainability has been elusive in Bank forestry projects. It depends on the technical competence of the implementing agency, the capacity of activities to be self-financing, local and national government commitment, and the policy setting. The most sustainable projects were those that provided not only for technical training and capital but also for community participation in their management.

Institutional and policy reform. The Bank's policy shift from exploitative to sustainable forestry projects was manifested in a significant increase in forestry-lending activity. However, the forest industry—timber, wood products—focus of Bank forestry projects lingered on for some time and continues today in many Bank borrowing countries.

A sectoral approach to forestry development has also slowly evolved. Yet the complexity of sustainable forestry programs in many Bank borrowing countries requires a forestry-sector as opposed to a project-lending approach. Again, limited institutional capacity in borrowing countries has been the key constraint in developing and implementing forestry sector strategies.

Major Issues

The Bank review also surfaced some development assistance issues of major importance, as briefly explained below:

Financial problems. Because of their slow maturity, many forestry projects require periods of financing that extend far beyond normal project cycles. Consequently, donors need mechanisms to sustain financial support for forestry projects until these projects are able to generate their own or attract other financing support.

Operating expenses. Compared with many other sectors, forestry development has a high ratio of operating to capital costs, which puts pressure on governments seeking to control public expenditures. Donors therefore must either provide external funding for operations—normally a host government responsibility—or consider only forestry projects with either lower operating to capital cost ratios or high revenue-generating capacity.

Incentive structures. The design and implementation of sustainable forestry projects must give special attention to nonmarket incentives, particularly property and use rights regimes. These incentives often require explicit attention to complex community and cultural factors.

Management. Forestry sector projects should specify the importance of and the special requirements for coordination and cooperation among responsible government agencies and address the potentially conflicting goals that these agencies may have for managing forestry resources (e.g., tourism and recreation, agriculture, water and land conservation, industry and trade). The multiuse nature of forest resources further underscores the need for a sectoral approach to forestry projects and programs.

Appropriate technologies. Capital intensive technologies are not always the answer to forestry problems. Donors should first consider indigenous local techniques for support and replication before discarding them in favor of high-tech, capital intensive solutions. In some forest watershed projects, for example, local *in situ* moisture conservation techniques that used vegetative matter and contour hedging proved less costly and just as effective as project-funded block levelling and bench terracing using heavy earth-moving equipment.

More information on the Bank's review of forestry projects can be found in Forestry—The World Bank's Experience. The Operations Evaluation Department, World Bank, Washington, D.C., October 1991.

Field Perspectives

A.I.D. Regional Environment Initiatives

Each A.I.D. geographic bureau has adapted the Agency Environmental Strategy to develop guidelines and principles tailored to the unique environment and natural resource management (E/NRM) concerns and priorities of its region. Several A.I.D. geographic bureaus have also developed multicountry regional projects to carry out the Agency's Environmental Strategy. Through these regional projects the Agency has been able to achieve a more focused and cost-effective use of E/NRM

Effective management of natural resources will therefore remain a critical component for any successful long-term development strategy.

The Africa Bureau's environmental strategy is described in the Plan for Supporting Natural Resource Management in Sub-Saharan Africa (PNRM). PNRM was approved in 1987 and last reviewed and updated in January 1992. It establishes technical and geographical areas of focus for A.I.D. E/NRM programs in sub-Saharan Africa and presents specific guidelines for sector assessment and program analysis. The PNRM framework guides A.I.D.'s ef-

a natural resource indicator framework. The framework's purpose is to guide field programs and to assist the Africa Bureau in tracking E/NRM investments with regard to people-level impact. The status of progress in E/NRM, and indeed in all other sectors of a field Mission's portfolio, is reported in the Mission's annual "Assessment of Program Impact." The Africa Bureau's E/NRM indicator framework and associated indicators are increasingly being incorporated into the Agencywide PRISM system (see "Tracking A.I.D.'s Environmental Programs" in this issue).

The E/NRM indicator framework is a five-level sequence of interconnected actions leading to the ultimate objective of sustainable increases in production and income:

- Level I, which builds on a given biophysical foundation, consists of A.I.D., host country, and other donor inputs that bring about changes in the conditions facing local peoples.
- Level II deals with changing conditions known to prevent people from adopting more resource-sustainable practices. Donor-funded actions are generally directed at Levels I and II.
- Level III concerns the adoption of better management practices by natural resource users and represents the core challenge and the level at which program impact can best be measured.
- Level IV concerns biophysical changes. As adoption occurs, both among users and over a geographic area, positive changes affecting biophysical conditions result.
- Level V is the achievement of development goals. The biophysical changes permit progress toward and achievement of the Level V strategic objective: sustainable increases in both the productivity and income of local people.

The Africa Bureau is tracking PNRM implementation and, in so doing, is helping to refine indicators and data collection methodologies for E/NRM monitoring, evaluation, and reporting. PNRM has been supported in the past by the centrally funded Natural Resources Management Support (NRMS) project. The NRMS project has provided a mechanism for undertaking strategic/sector analysis and information exchange needed by the Africa Bureau, USAID Missions, and nongovernmental organizations (NGOs) in Africa to develop, implement, and measure the impact of E/NRM programming in the African regions. Since authorization, the NRMS project has assisted

- Africa field Missions in natural resource assessments, programming and policy development, information exchange, and training. The assistance has increased the quality and quantity of E/NRM programming.
- Africa regional bureau offices in technical coordination and networking, database development, and information exchange. The project assistance has guided implementation of the PNRM and established a basis for measuring impact.
- Host country and U.S.-based NGOs through institution building, technical coordination and networking, information exchange, workshops, and small grants. These efforts have increased the capacities of the host countries and NGOs to implement natural resource activities.

The Africa Bureau has begun implementing a new regional project initiative to redirect field support from operational to analytical and conceptual assistance. The continuing effort to refine PNRM indicators and track PNRM performance will be supported by a new agriculture and natural resource sector analytical project, the Policy Analysis, Research, and Technical Support (PARTS) project. PARTS will be the vehicle for implementing the Africa Bureau's research and analytical agendas in E/NRM, agribusiness and marketing, food security, agriculture, technology and transfer, and environmental impact assessment.

Part of the Africa Bureau's analytical agenda is to assist African governments in programming and implementing effective natural resource policy changes and compiling and analyzing the sustainable impacts of development programs on the lives of their people. As part of this effort, the Africa Bureau, with the World Resources Institute, has established a Natural Resources Management Policy Experts Group and an Information Management Experts Group. These expert groups provide additional field support on E/NRM policy and appropriate geographic information systems (GIS) and information management systems and their applications.

For further information on the NRMS and PARTS projects and about other activities and support for E/NRM programs in Africa, contact John Gaudet (AFR/ARTS/FARA), Tel: (202) 647-7016. Fax: (202) 736-7130.

The Latin America and Caribbean Region

The Latin America and Caribbean (LAC) Bureau's Environment and Global Climate Change (E/GCC) Program is the Agency's principal response in the region to a 1990 Congressional mandate to assist key

developing countries projected to emit large amounts of greenhouse gases into the atmosphere. The initiative focuses principally on reducing greenhouse gas emissions from deforestation by promoting practices and policies that increase the sustainable use of forests and agricultural lands. A secondary focus of the initiative is on promoting energy efficiency and use of alternative energy sources to help reduce the burning of and reliance on fossil fuels.

In addition to Brazil and Mexico, the E/GCC has selected Central American countries as targets of country-level activities, in part because these countries offer the opportunity for developing a model of international cooperation in solving E/NRM problems.

The LAC Bureau has proposed a system for monitoring and reporting the initiative's impact in the region. The system would establish a regional E/GCC evaluation contractor to oversee monitoring and reporting activities of the grantees undertaking activities at the country level, the types of data to collect for measuring progress toward achieving a reduction in deforestation and an increase in energy efficiency strategic objectives, and a schedule and procedures for collecting data and reporting the impact and performance of E/GCC initiatives.

Another important aspect of E/GCC is evaluation, which will occur at three levels: individual activities, country programs, and the overall regional initiative. The purposes of evaluation are to report progress made at all three levels toward achieving the initiative's strategic objectives and to provide information for making changes in funding allocations and the management of activities as needed. For example, the program will assess market demand, costs, and benefits of processing products grown or extracted from forests managed by grantees and will monitor any changes in forest ecology that result from timber and forest management practices promoted by grantees.

The evaluation system will be developed within the framework of the LAC Bureau's Program Performance Assessment System (PPAS) and A.I.D.'s Program Performance Information System for Strategic Management (PRISM). Under the new evaluation system, LAC Missions will establish their own strategic objectives for E/GCC, which will be linked by PPAS to the higher level program activities and strategic objectives. PRISM will provide training and data management and reporting services.

The E/GCC evaluation will also test key assumptions of the initiative. For example, underlying the strategy of promoting demonstrations of forest management practices is the assumption that these practices are economically and ecologically sound. Another assumption is that farming communities will respond favorably to forest-product extraction and agroforestry practices being developed by local nongovernmental organizations. The E/GCC will monitor forest enterprise and farmer responses to determine whether these assumptions hold.

Over time, the evaluation system should yield a time-series database of measurable steps or critical events that could be combined to assess the cumulative impact of forest management activities. Such assessments might include measurements of the percentage increase in the area under the forest management system or the number of policy reform measures adopted or enforced. As they become available, a summary and assessment of aggregate measures of program performance should be a key theme in E/GCC annual reports.

Further information on the Environment and Global Climate Change initiative may be obtained from James Hester, A.I.D./LAC/DR/E, Tel: (202) 647-8093, Fax: (202) 647-8098.

The Near East Region

The Near East Bureau is pursuing environmental efforts through its 5-year Project in Development and the Environment (PRIDE), which focuses on two problems of concern:

- Prevention and mitigation of urban and industrial pollution and promotion of water conservation and use management
- Efficient energy use and environmentally sound and sustainable agricultural practices

Under this umbrella project, the Near East Bureau has mobilized a consortium of environmental institutions and consulting firms to guide and support Near East country E/NRM programs and to assist in tracking program impact and performance.

The project has integrated its four component activities—strategic planning, environmental policy analysis, environmental education, and private sector initiatives—to generate a mutually reinforcing program for the Near East region where such problems as urban, industrial, and agricultural uses of water are often interrelated. Thus, for example, monitoring and evaluation, which are important elements of strategic planning and policy analysis, can be carried out efficiently and the results used in environmental education activities.

PRIDE also fosters the use of existing Agency evaluation frameworks, such as PRISM, to support the development of E/NRM strategic objectives and measurement of performance indicators in environ-

mental planning and policy reform in A.I.D.-assisted Near East countries. The PRISM framework was developed in part from the Near East Missions' strategic objectives. It provides an Agencywide framework of performance and impact indicators to monitor the Near East Bureau's E/NRM initiatives.

PRIDE makes core-funded services available to Near East field Missions from a range of consulting sources and jointly conducted training, networking, and information exchange activities. It also has a buy-in mechanism for field Missions of the Near East and the Eastern European programs to access environmental services on a more sustained basis.

For further information on and help in accessing PRIDE services contact Curt Nissly, A.I.D./NE/DR/ENR, Tel: (202) 663-2493, Fax: (202) 663-2494.

The Asia Region

With more than half of the world's population of five billion, the countries of Asia are experiencing acute environmental and natural resource degradation problems. To tackle the causes of the region's environmental problems, the Asia Bureau is focusing on four priority areas within the Agency Environmental Strategy:

- Loss of tropical forests and biological diversity
- Urban and industrial air, water, and solid- and hazardous-waste pollution
- Degradation and mismanagement of water and coastal resources
- Energy shortages and use inefficiencies and generation of environmentally sound energy resources

At the country level, each USAID Mission has selected to address a subset of these problem areas. Regionally, the Agency is supporting country-level initiatives through the U.S.-Asia Environmental Partnership. Through U.S.-AEP, field Mission and Asia Bureau programs are focusing on three strategic approaches to improved environmental management:

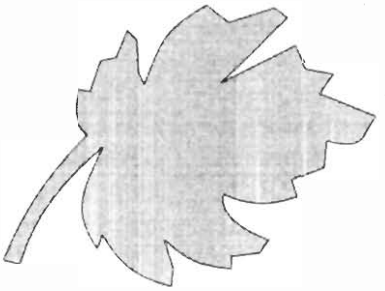
- Policy reform
- Institution building and public awareness
- Private sector participation

The purpose of this partnership is to mobilize U.S. public- and private-sector expertise and technology jointly with those of Asian countries to restore, protect, and preserve the fragile and rapidly deteriorating ecosystems of the Asian countries. The U.S.-AEP will provide technical expertise and will offer examples from the United States of legal, regulatory, and incentive systems, and of popular participation in support of Asian country environmental programs. Participating countries will benefit from

- A technology-cooperation program to provide access to the most current information and advances in U.S. environmental policies and management approaches, energy-efficient technologies, and renewable energy
- A training program for senior-level managers and scholars to develop solutions to the region's environmental pollution and natural resource depletion problems
- An environmental-infrastructure program to foster investment projects in water supply and waste-water treatment, emissions controls, and solid- and toxic-waste handling and disposal
- A regional biodiversity conservation network to help communities conserve and use their plant and animal species
- A multidisciplinary environmental database of information

To measure progress toward achieving the goals of its environmental strategy, the Asia Bureau will develop indicators for each country environmental project, as well as for the regional program as a whole. Project-level indicators will be measured through both project evaluations and the Agency's PRISM process. In addition, U.S.-AEP will develop a set of indicators and system for measuring progress across the region. These indicators will be fed back into the country-level monitoring systems maintained by the field Missions.

For more information about U.S.-AEP and the Asia Bureau environmental strategy, contact Molly Kux, A.I.D./ASIA/DR/E, Tel: (202) 663-2356 and Fax: (202) 663-2149.



Design and Evaluation Methods

"Green Accounts": Measuring Natural Resource Depletion and Environmental Degradation

by Phillip E. Church, Center for Development Information and Evaluation

Economic development, as now measured, works an unkind trick on the environment: the more a country depletes its natural resources or neglects its environment, the better it can look in terms of economic growth—at least in the short run when development is measured by currently accepted national accounting methods.

Conceptually the reason is simple. Economic growth is generally measured in terms of changes in gross income streams. When resources are sold or the environment is damaged to avoid higher production costs, gross national income is increased, giving the appearance of more rapid economic growth. But because such calculations make no allowance for the depletion of a country's natural resources, traditional national income growth estimates overstate true economic performance.

Development specialists have begun to tackle the problem of valuing the costs of natural resource depletion and environmental degradation. The World Bank and the World Resources Institute (WRI) have attempted the most ambitious efforts at developing a set of "green accounts," which outline a conceptual framework and incorporate measures of natural resource values and costs in national accounting procedures. Their efforts also reveal the measurement difficulties inherent in any attempt to build explicit linkages between the environment and development.

Traditional National Accounting

Development donors and developing countries alike have come to depend on the United Nations (UN) System for National Accounts (SNA), used since 1968 to produce annual estimates of national economic performance for all UN member countries. The SNA emphasizes gross domestic product (GDP), a measure of all national market activity, as an indicator of economic performance. GDP measures have come under increased criticism because they make no provision for the consumption (depletion) of natural capital (resources) and are therefore seen as disincentives for policies that would encourage sustainable development.

Income, in standard economic terms, is the maximum consumption possible in the present period that does not reduce future consumption possibilities. Traditionally, national income accounts, or GDP, have accounted for the depreciation and maintenance of physical capital stock that must be replaced or maintained to ensure future income flows. In the current SNA, however, no allowance is made for depreciation of natural capital stock, even though it is now recognized as also critical to sustaining future income and consumption growth.

The Greening of National Income Accounts

World Bank and WRI specialists have begun the process of expanding the SNA to include total coverage of all productive assets, natural and physical, by adding environmental assets (soils, water, forests, biological resources). Similarly, additional costs related to environmental maintenance (e.g., expenditures for environmental cleanup, pollution abatement, and recycling) are also included in the new SNA. These costs, when deducted from GDP, generate a new "green" accounting of net national product. The specific deductions that the World Bank proposes for inclusion at the outset are as follows:

- Expenditures by households, firms, and government for environmental protection
- Adverse environmental effects on human health
- Environmental costs of household and government consumption and of industry production
- Environmental damage from disposal of capital goods
- Transfer of environmental effects across country borders

The conceptual task of expanding SNA to include these factors is straightforward. But because of inherent measurement problems that vary among countries, the inclusion of these deductions would result in uneven estimates. The World Bank has therefore settled on developing a set of "satellite"

green accounts, which can be developed independently for each country to enable countries to measure their own performance. Attempts at cross-country comparisons are still considered premature.

Early applications have provided some interesting results. The WRI, applying its own version of green accounts to Costa Rica and Indonesia, came up with some very telling results. In the case of Indonesia, green-account measures concentrated on the depletion of forest, fishery, and petroleum resources. Under green-account measures, Indonesia's economic growth fell from an unadjusted annual rate of 7.2 percent to about 4 percent during the 1971-1984 period of analysis. For the 1970-1989 period, similar data were collected for Costa Rica, where annual GDP growth dropped 25 to 30 percent, from 4.6 percent to 3 percent.

Green-accounting procedures hold promise as useful evaluation tools of development and environment linkages. While conceptual and measurement issues still need to be sorted out, green-accounting procedures can provide a framework for examining environmental change in the course of economic development. As techniques of measurement improve, so too will the accuracy of calculating a development program's impact on the environment.

More information on green accounting for measuring environment and natural resource changes can be obtained from the following publications:

Ahmed, Yusuf, and Saleh El Serafy, ed. *Environmental Accounting for Sustainable Development*, World Bank, 1990.

Repetto, Robert, and William Magrath. *Wasting Assets: Natural Resources in National Income Accounts: Indonesia*. WRI, 1989.

Cruz, Wilfredo, and Robert Repetto. *Accounts Overdue: Natural Resource Depreciation in Costa Rica*. WRI, 1991.

Evaluation System News

Tracking A.I.D.'s Environmental Programs

by Steven Gale, Center for Development Information and Evaluation, and Patricia Vondal, Management Systems International

In A.I.D. Evaluation News Vol. 3, No. 4, 1991, Gerald Britan of the Center for Development Information and Evaluation (CDIE) reported on the background and progress of the Agency's Program Performance Information System for Strategic Management (PRISM). In this issue the authors discuss the applications of PRISM to the Agency's environmental and natural resource programs.

A.I.D. will soon have a powerful new information tool—PRISM—to monitor and measure the performance of its environmental and natural resource management (E/NRM) activities. PRISM was mandated as part of the Administrator's *Evaluation Initiative* to develop and use performance data for strategic management. As a program performance information system, PRISM will help the Agency to "manage for results" in a time when government program accountability is seen as the highest virtue. Data from this system, when fully developed, will be used to inform program, budgetary, and policy decision-making throughout the Agency and at all organizational levels. Already, PRISM is providing a comprehensive overview of the Agency's E/NRM programs in terms of the specific objectives and strategies pursued by field Missions, regional bureaus, and functional offices.

The Center for Development Information and Evaluation (CDIE) is developing PRISM collaboratively with technical staff from A.I.D. field Missions and regional bureaus. These staff are members of the PRISM Environmental Working Group and from the very beginning have helped define the strategic planning framework to describe and measure the impacts of the Agency's E/NRM programs. The intent of CDIE is to build a system from the bottom up. That is, to anchor PRISM in the reality of what is feasible and practical under real field conditions and Mission operating constraints. Such a system must be flexible to capture diverse E/NRM activities in more traditional developmental contexts as well as to capture new environmental challenges presented by countries of Eastern Europe and the Newly Independent States receiving A.I.D. support

Four separate but coordinated PRISM activities are either under way or in the planning stages to achieve the goals of this new program performance information system. The activities include:

- Technical assistance to provide Missions, regional bureaus, and functional offices with hands-on strategic planning to enable them to clarify their E/NRM objectives, identify indicators and data sources, and to develop the resident capacity to operate a program performance information system.
- E/NRM guidance to provide a common Agency-wide set of definitions for strategic planning in general and E/NRM in particular which are consistent with bureau-level strategies and guidance.
- Training in the form of workshops for A.I.D. staff and their host-country counterparts on strategic planning, performance-oriented monitoring, and evaluation systems.
- Database development to code, store, and analyze E/NRM data on strategic objectives, program outcome, indicators, program targets, and actual results.

Environment and natural resource management represent one of the four thematic areas of PRISM—the other areas are private sector economic growth, democratic initiatives, and human resources. Collectively these four thematic areas describe the entire range of activities in which the Agency is currently engaged. Thus E/NRM is a central feature of PRISM. With support from others in A.I.D. working on environmental issues, PRISM can also be used to identify the essential linkages among environmental quality, natural resource management, economic growth, and human resource development.

How the PRISM E/NRM Database Is Organized

Based on documentation provided from Missions which describe their strategic objectives and program outcomes, the PRISM Environmental Working Group has categorized the Agency's E/NRM activities into two broad clusters. The first cluster describes Mission-based activities to improve natural resource management (INRM) and the second cluster describes Mission-based activities to improve environmental quality (IEQ). Almost all E/NRM strategic objectives reviewed by the working group fit into one of these clusters and several objectives span both clusters. Each cluster is described in more detail below.

- Improved Natural Resource Management (INRM)—This first cluster of E/NRM strategic objectives includes all those activities to *improve natural resource management* that are known to be critical for economic, ecological, and health reasons. Relevant activities are those that contribute to the establishment and implementation of those policy incentives, regulations, and practices which would foster the sustainable use of natural resources including soil, forests, flora, fauna, freshwater, watersheds, coastal, and energy resources.
- Improved Environmental Quality (IEQ)—This second cluster of E/NRM strategic objectives includes all those activities to *prevent, mitigate, or reverse damage* to the environment caused by indiscriminate practices. Relevant activities are those that contribute to the establishment and implementation of policy incentives, regulations and practices which would begin to reverse the deteriorated state of the environment, natural resources and urban/industrial environments that are critical for health, economic, and ecological reasons. These include an emphasis on improved quality of air, land, water, and other degraded natural resources through such mechanisms as pollution prevention, recycling, use of renewables, energy efficient technology, proper waste management, and other approaches.

A working group of Agency environmentalists has organized PRISM E/NRM performance indicators into five areas consistent with the Agency's new Environmental Strategy:

- Tropical forestry and other critical habitats for biological diversity
- Sustainable agriculture
- Environmentally sound energy production and use
- Urban and industrial pollution
- Water and coastal resources

Levels of E/NRM Project Impact

PRISM further ranks performance indicators as reported from the field at several levels of impact (see Box 1). PRISM draws from the Africa Bureau's indicator framework to measure the impact of Agency environmental activities. As discussed in the "Field Perspectives" article on the African Region's initiative, the framework comprises five interconnected levels of impact:

Level V: Sustainable increases in productivity, income, and human welfare (development goal)

Level IV: Biophysical changes that produce Level V outcomes (environmental goal)

Box 1. An Example of an Indicator Framework at Work in USAID/Nepal

While USAID/Nepal is still making decisions about the final strategy and choice of indicators for monitoring performance over time, part of the basic framework is already in place. One of the Mission's strategic objectives is increased private sector contribution to income growth.

One of the major elements of that strategy is to turn over publicly owned forest land to private forest user groups. The user groups are primarily small farmers who have special uses for a variety of forest products found in Nepal (e.g., fertilizer and fuelwood). USAID/Nepal has made several well-founded assumptions concerning the link between small farmer access to forest resources and income growth. The Mission strategy fits under the "sustainable agriculture" focus of the E/NRM organizing framework.

Working from the bottom of the framework, Level I indicators (i.e., actions that establish Level II conditions) measure institutional policy changes. In this case, USAID/Nepal has worked with the planning unit of the Ministry of Forestry to develop legislation to turn over state-owned forests to private user groups. The Mission has met its goal at this level.

At Level II, conditions that lead to adoption of improved practices, indicators deal with the realization or implementation of changes in policies or institutions. In the case of Nepal, the Mission is working with the Ministry to promote implementation of the legislation turning over state-owned forests to private user groups. At Level III, adoption of practices that produce biophysical changes, the USAID Mission will measure several indicators of the total area encompassed by new practices and the number of people or groups engaged in the new practices. (It is important to measure both the area and the number of people involved.) Specifically, the Mission will measure the percentage of annual increase in the total number of hectares of forest land granted to user groups and the hectares of park area under participatory management as a percentage of total park area. They will also measure the number of forest user groups formed and registered.

At Level IV, indicators measure environmental conditions and biophysical changes that contribute to producing the development goal. USAID/Nepal assumes that quantity and quality of forest cover will be increased or maintained on a sustainable basis because of practices adopted by registered forest user groups. The Mission will probably have to undertake a special study sometime during the life of the project to test this assumption.

At Level V, indicators measure the achievement of the development goal—in this case, increased income. USAID/Nepal has baseline data for a sample of rural households, some of which will be affected by project efforts to promote private forest user groups. Income data will be collected again in several years to measure changes in income.

Level III: Adoption of practices that produce Level IV changes (project purpose)

Level II: Conditions that contribute to adoption of Level III practices (project output)

Level I: Actions that establish Level II conditions (project input)

As noted these impact levels correspond roughly to the four stages of A.I.D.'s Logical Framework for Projects: Level I corresponds with project inputs, Level II with project outputs, Level III with project purpose, and Levels IV and V with project goals.

The majority of the E/NRM indicators compiled from field Mission reports deal with the adoption of practices that produce improved environmental (biophysical) changes. Missions that sponsor E/NRM projects and programs largely focus their activities on promoting actions and conditions that in turn lead to the adoption of improved natural resource management practices. However, generally, A.I.D. field Missions state it is not within their management interests to claim responsibility for actual changes in the status of environmental conditions and biophysical states.

In addition, measuring biophysical changes may be too costly in terms of time and money. Frequently, measurable biophysical changes can take many more years than are allotted for the typical 5-7 year period of A.I.D programs. Three exceptions are solid waste emissions and air and water quality, all of which can be affected, and measured, more readily. Hence, indicators under these categories measure altered states in emissions from solid waste incinerations and in water and air quality.

Box 1 provides an example from A.I.D.'s Mission to Nepal, illustrating how the organizing framework works to report on impacts from A.I.D. E/NRM programs.

E/NRM Indicators and Their Measurement

Box 2 lists 31 core E/NRM indicators. A.I.D. field Missions can select indicators for the area of environmental activity most appropriate to their work. For example, Missions working on urban or industrial environmental problems may have programs addressing air pollutants and solid wastes. Accordingly, they should consider the indicators under those subcategories.

The ultimate goal of all E/NRM objectives is not to improve the environment for the sake of the environment alone, but to contribute to sustainable economic development, increased incomes, sustainable agricultural development, and improved health status of the population. A key step in achieving these higher level goals is promoting changes in the practices of people to manage their physical environments and resources more beneficially.

In most cases, there is a spectrum of improved E/NRM practices being diffused to communities. Individuals may adopt one or more of those practices, but not necessarily all. It is important for Missions to analyze which practices are being adopted and why, and then to reassess, and perhaps even modify, Mission recommendations and choice on the practices to monitor.

Any indicator must be preceded by analytical work linking the indicator with people-level impacts (as measured, for example, by changes in yields or income over time), biophysical impacts, and A.I.D.-supported changes in policy, institutional, or socioeconomic conditions that contribute to the diffusion of appropriate practices.

PRISM staff are working with field Missions and regional bureaus to develop an illustrative list of strategic indicators for each of the E/NRM clusters, providing guidance on the use of the indicators, and disseminating information on indicators developed for each of the five levels. Dissemination of indicators encourages greater consistency among Missions and bureaus reporting on impacts of A.I.D. programs. The list of indicators can also function as a guide or "menu" from which field Missions can select the indicators necessary for monitoring the progress of their programs. Where appropriate to the situation, indicators should be disaggregated by gender.

To obtain more information or arrange for PRISM support services, contact Steven Gale, Center for Development Information and Evaluation, Tel: (703) 875-5547 and Fax: (703) 875-5269

Support for Sound Natural Resource Policy

by Russell Misheloff, Office of Environment and Natural Resources, Research and Development Bureau

Recently, donors, nongovernmental organizations (NGOs), and developing country governments have turned their attention to investigating the complex web of economic and physical interactions leading to environmental degradation and unsustainable patterns of natural resource use. Such investigations show two important causes of degradation and depletion: policy failures—inappropriate government policies—and market failures—markets in which prices do not reflect the true environmental cost of providing or using particular goods or services.

At an operational level, the Agency's first response to the need for policy analysis addressing environmental concerns was to stretch ongoing projects to encompass environmental and natural resource (ENR) policy components and to design new initiatives to address *inter alia* the policy dimension of particular ENR problems. An example of such an approach is the Bureau for Research and Development's (R&D) Agricultural Policy Analysis Project, developed by R&D's Office of Agriculture. Under this sponsorship, natural resource policy inventories were carried out in each of the Central American countries in an effort to better understand the relationship between the policy environment and observed ENR problems, and the political, economic and institutional contexts that are important in determining the feasibility of alternative approaches to policy reform. Other regional or centrally funded projects with ENR policy components are the R&D Bureau's "Development Strategies for Fragile Lands" (DESFIL) project; the Africa Bureau's Policy Analysis, Research and Technical Support (PARTS) project; the Project in Development and the Environment (PRIDE), which serves the Bureaus for Near East and Europe; R&D/Office of Economic and Institutional Development's "Implementing Policy Change" project; and A.I.D.'s cooperative agreement with Duke University's Center for Tropical Conservation. This list is only illustrative. Moreover, it does not include the growing number of Mission-sponsored projects with ENR policy components.

With R&D/Office of Environment and Natural Resource's new Environmental and Natural Resources Policy and Training (EPAT) project, A.I.D. is

Box 2. Environmental and Natural Resource Management Core Indicators

Tropical Forestry, Biodiversity, and Critical Habitats

- Type of resources used (land, marine, forest) and number of users (e.g., farmers, by gender, logging companies, as appropriate to the situation) adopting management practices that increase the quantity and quality of vegetative cover (INRM and IEQ) (LM). (See note at the end of box.)
- Percentage and total number of hectares under management practices that increase the quantity or quality of vegetative cover (INRM and IEQ) (LM).
- Percentage of remaining natural forest brought under improved management practices (INRM) (NS or LM).
- Number and type of land users (e.g., farmers, by gender, logging companies, as appropriate to the situation) participating in active management practices in support of the conservation of biodiversity (INRM) (LM).
- Establishment of protected areas, for example, conservation parks, in zones known to contain important species.

Sustainable Agriculture

- Number and type of land users adopting new practices that will improve the physical environment for agriculture (e.g., indicators for such measurements as soil fertility, soil conservation, range resources, forest resources, water availability) and will contribute to sustainable economic development (INRM and IEQ) (LM).
- Total number of hectares covered by improved practices and percentage of total area targeted for coverage (INRM and IEQ) (LM).

Water and Coastal Resources

- Reduced levels of pollutants in water, as measured by the concentration of coliform bacteria, nitrates, phosphates, solid waste, fluid waste, and hazardous waste (whichever is appropriate for measuring, as determined by baseline measures) (IEQ) (NS or LM).
- Reduced levels of sedimentation, as measured by the concentration of sedimentary particles (IEQ) (NS or LM).
- Reduced levels of salinization in freshwater, as measured by concentration of salts (IEQ) (NS or LM).
- Number and type of people (e.g., fishermen, aquaculturalists, and developers), by gender, adopting management practices that conserve aquatic biological resources (INRM) (LM).
- Percentage and total number of hectares under management practices that conserve aquatic biological resources (or other measures, such as coastal miles and number of watersheds) (INRM) (LM).
- Number and type of water users, by gender, participating in water-user organizations, as a percentage of total people targeted (INRM) (LM).
- Percent reduction in the amount of water used, either for particular water user or by site, as appropriate (INRM) (LM).
- Percentage of water users adopting conservation practices (INRM) (LM).
- Percentage of population with access to potable water (INRM) (LM or NS).

Energy Resources

- Higher percentage of alternative energy sources used by public and private consumers (e.g., woodlots for fuel and other uses) (INRM) (LM).
- Increased investments in alternative energy generation and use (INRM) (LM).
- Increased marketing of alternative energy products and services (INRM) (LM).
- Reduced air pollution emissions from thermal electric generation (IEQ) (NS).
- Higher percentage of energy from environmentally sound sources (e.g., geothermal and solar sources) used by public and private consumers (INRM) (LM).
- Increased investments in environmentally sound energy generation (INRM) (LM).
- Increased share of products and services marketed from environmentally sound energy sources (INRM) (LM).

Urban/Industrial Environment

- Reduction of free-floating particulates, carbon dioxide, sulfur dioxide, and other toxic emissions to agreed upon health and environmental levels (IEQ) (NS or LM).
- Number of public and private vehicles not meeting emissions standards modified or removed from use (IEQ) (DE/NS).
- Number of industrial plants modified to reduce emissions to acceptable levels (IEQ) (DE/NS).
- Reduction of emissions from solid waste incineration to within acceptable levels (IEQ) (DE/LM).
- Percentage of solid wastes collected, handled, and recycled by private and public or parastatal firms (IEQ) (DE/LM).
- Percentage of industrial and residential solid wastes properly contained, promptly removed, and, where required, placed in solid waste landfills with proper drainage and coverage (IEQ) (DE/LM).
- Percentage of hazardous wastes destroyed in environmentally sound fashion, recycled into harmless wastes and economically reusable byproducts, or reconstituted into usable hazardous products under proper control and management (IEQ) (LM).
- Number of industries and agencies implementing hazardous waste plans (IEQ) (DE/LM)

Note: Evaluators must determine a potential data source for each of the proposed indicators. Possible sources for the preliminary PRISM E/NRM indicators list are national statistics available from host government or international organizations and Mission-collected data for local measurement.

INRM = improving natural resource management; IEQ = improving environmental quality; DE = date of event; NS = national statistics; LM = local measurement

taking a new and comprehensive approach to ENR policy issues. EPAT attempts to deal with the broad array of ENR issues by addressing the entire spectrum of policies that impinge on these issues. Because the relationships among policy, environmental quality, and sustainable natural resource use are often not well understood, a core research component has been designed into the project to allow teams of top researchers to work on these issues under a cooperative agreement with the Midwest Universities Consortium for International Activities.

An early product of this project component will be a series of synthesis reports describing what is known about the policy dimension of such problems as tropical deforestation, watershed management, energy efficiency and use, urban and industrial pollution, and natural resource pricing. These reports will provide a clearer picture of what A.I.D. knows, what it doesn't know, and what it needs to know. In this way the reports will help establish priorities for new research, including EPAT-sponsored research. In cases where research is able to resolve an issue reasonably well, the analysts will prepare a policy brief to inform Missions, host country analysts and policymakers, and other donors on the key findings of the report.

EPAT also has a technical assistance component responsive to the technical needs of Missions and regional bureaus. Under a separate contract with a consortium of consulting firms, academic institutions, and think tanks headed by Winrock International, EPAT provides the following services under buy-ins:

- In-country or in-region analysis
- Technical assistance to support Mission-directed policy dialogue
- Technical assistance to strengthen private and public institutions providing ENR policy analysis to A.I.D.-assisted developing countries
- Training for ENR policymakers and analysts

The form of technical assistance will vary depending on the needs of particular Missions. For example, assistance could involve performing collaborative research with host-country institutions; conducting workshops, seminars, or conferences to highlight the implications of policies promulgated without due attention to their ENR impacts; providing planning services to Missions choosing to pursue ENR issues as a strategic objective; assisting Missions in designing and evaluating projects with ENR policy components; providing long-term resident personnel as advisers to institutions responsible for ENR policy analysis; and designing and conducting training courses in such areas as natural resource valuation and pricing, policy analysis methods, regulatory versus market-based policy options for dealing with ENR problems, and analysis of policy options for feasibility of implementation and likely impacts.

Further information about EPAT and its support services can be obtained from Russell Misheloff, A.I.D./R&D/ENR, Tel: (703) 875-4046 or Fax: (703) 875-4369.

A.I.D.'s New Environmental Information Center

by Jesse Floyd,
Development Alternatives, Inc.

A.I.D. has responded to the information needs for management of its expanding environment portfolio by launching an Environment and Natural Resources Information Center (ENRIC). Created in September 1991 as an information facility serving A.I.D.'s programming and monitoring needs, ENRIC tracks and reports on environmental and natural resource activities funded by A.I.D. through project and nonproject assistance.

ENRIC is developing a special database of environment and natural resource management (E/NRM) activities to support its tracking and reporting services. The database builds on and enlarges A.I.D.'s existing project databases by adding technical information on environmental activities, funding commitments, expenditure levels, implementation arrangements, and progress and performance. The long-term objective of the ENRIC database is to integrate statistical and text information with geographic information systems (GIS) and information management systems using a menu-driven interface for easy review and analyses by general database users.

The ENRIC database is also being used to analyze and report on the Agency's financial obligations for environmental activities. Calculations are based on the Activity Code/Special Interest Code (AC/SI) data compiled on every A.I.D.-supported project. In previous years, this information was analyzed only on obligations for conservation of tropical forests, and biological diversity. As the Figure illustrates, obligations for these activities have increased from almost $60 million to more than $160 million over the last 5 years.

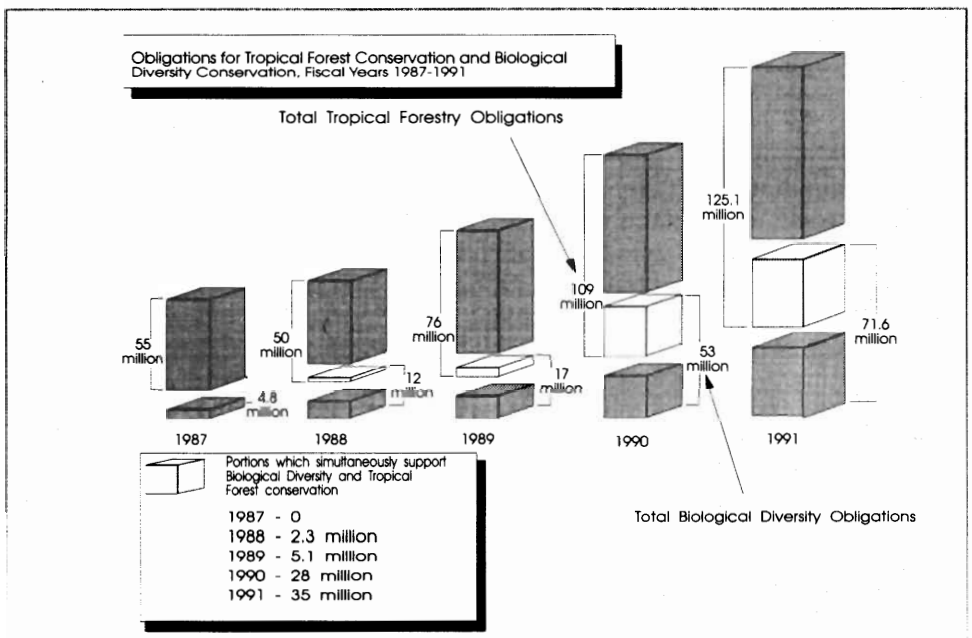
The growing number and diversity of E/NRM activities has prompted several changes in the

AC/SI coding system. ENRIC has participated in recent efforts to refine definitions and define new codes and aggregates to track financial obligations in each of the five program areas identified in the Agency's Environmental Strategy. ENRIC has also worked with the bureaus to validate E/NRM project coding to ensure that the data reflect the most up-to-date, accurate information available on the nature of each project activity. Changes have been made in consultations with the Policy Directorate and appropriate project personnel are being incorporated into the database.

ENRIC has completed the 1990-1991 report to Congress on tropical forestry and biological diversity conservation and has also published its first quarterly newsletter, reporting on environment and natural resource issues and providing a narrative summary describing the Agency's 1990/1991 Environmental Program. A more detailed report addressing each of the five environment program areas, complete with financial data, will be published later this year.

The demands for greater A.I.D. monitoring information are evident from ENRIC's compilation of the growth in A.I.D. funding obligations for tropical forestry and biological diversity initiatives over the last 5 fiscal years, 1987 to 1991 (see Figure). This threefold growth reflects a spectrum of new E/NRM programs in every A.I.D. region of the globe.

For more information on ENRIC activities and services contact: Dan Deely, A.I.D./R&D/ENR, Tel: (703) 875-4019 or Fax: (875-4369) and Peter Freeman, DATEX, Inc. (202) 789-1525 or Fax: (202) 789-1520.



Environmental Training Opportunities for A.I.D. Staff

by Faith Halter, A.I.D. Staff Strengthening Through Environmental Training (ASSET) Program

In 1990 A.I.D. initiated the A.I.D. Staff Strengthening Through Environmental Training (ASSET) Program in response to increased demands for technical and management staff with expertise in environment and natural resource management (E/NRM). The ASSET Program helps A.I.D. staff incorporate the concept of environmentally and economically sustainable development into their activities. ASSET training efforts are designed to

- Improve the skills of A.I.D. staff in analyzing and responding to the broad spectrum of environmental issues addressed by the Agency
- Provide information on the E/NRM policies and activities of A.I.D. and other U.S. and international donor organizations
- Increase awareness about the development-assistance resources available for use in A.I.D. E/NRM programs and projects

ASSET offers three core courses:

Environmentally Sustainable Development Planning (ESDP). A 2-week course that provides a broad overview of environmental issues and how they relate to general economic development and U.S. Government policies. The course is designed for a cross-section of Agency professionals and is offered three to four times annually.

Environmental Impact Assessment (EIA). A 3-week course aimed at A.I.D. staff who have direct responsibility for Agency environmental work. The course reviews a broad range of analytic tools and methods employed in measuring the environmental effects of development assistance programs.

Environmental Economic Analysis (EEA). A 1-week course for Agency staff with experience in and responsibilities for the economic analysis of Agency programs and projects. The EEA course applies economic analysis tools to the special require-

ments of E/NRM activities. It will be offered for the first time in summer 1992.

ASSET courses draw heavily on the interests and experience of participants, with a view to sharing information and building networks that help Agency staff better evaluate ongoing Agency E/NRM activities and respond to rapidly evolving E/NRM issues. ASSET is also a vehicle for sharing within the Agency the results of A.I.D.'s environmental assessment work.

ASSET staff also arrange environmental agendas and provide speakers for A.I.D. seminars, conferences, and other short-term training activities and tailor training to the specific needs and interests of special Agency audiences. ASSET sponsors periodic resource fairs, lunch-time speakers, and related outreach activities. As part of its course material, ASSET provides notebooks of background materials that are regularly updated and offers interested readers a source-book compendium of laws, regulations, guidance, and procedures relating to the environment.

To enroll in ASSET courses contact: Donald Foster-Gross, PM/TD/PCT, Tel: 663-2330 or Fax: (202) 663-2291. For information about ASSET training services contact: Faith Halter, Institute for International Research, Tel: (703) 527-5546 or Fax: (703) 527-4661.

Many A.I.D. E/NRM Documents Are Available on CD-ROM

Many A.I.D. environmental evaluations, reports, and project descriptions, along with thousands of other development documents, are now contained on compact disc (CD-ROM) available from the Center for Development Information and Evaluation's (CDIE) Development Information System (DIS). The CD-DIS contains the complete A.I.D. document and project development experience databases and the full texts of selected CDIE evaluations. CDIE databases currently identify more than 7,000 projects initiated since 1974 and 65,000 associated project and technical reports.

Previously, this information was available from CDIE via online access or in hard copy only. Using CD-DIS on most personal computers, it is now possible to read entire evaluation reports, focus on a particular section in a report, or search across all evaluations on the disk for sections containing a particular word or word combination. Databases can be searched by subject, country, region, project number, date, words in the title or abstract, and report type.

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For order forms, contact: CD-DIS, USAID Development Information Services Clearinghouse, 1500 Wilson Blvd., Suite 1010, Arlington, VA 22209-2404. Tel: (703) 351-4006, Fax (703) 351-4039.

Recent Publications on Evaluation and the Environment

The June 1992 United Nations Conference on Environment and Development (UNCED) has generated a flurry of publications by a range of U.S. domestic and international environmental groups. The publications listed below were selected from among those that reflect recent efforts to compile environmental data and to evaluate current and ongoing environmental programs

World Development Report, 1992: The Environment, the World Bank, Washington, D.C. $7.95. The report highlights progress and issues confronting developing countries in reconciling their goals for economic growth with the need for a sustainable environment.

Forestry—The World Bank's Experience, 1992, the World Bank, Washington, D.C. $6.75. The report presents an overview of lessons learned from more than 25 years of bank lending to forestry projects worldwide. (See review in this issues of the Evaluation News.)

World Resources Report, 1992-93, World Resources Institute, Washington, D.C. $19.95. (Order from WRI Publications, P.O. Box 4852, Hampden Station, Baltimore, MD 21211.) The report contains the latest information and data on essential economic, population, and natural resource conditions and trends for 153 countries. It has a companion statistical diskette that can be ordered separately.

Environmental Evaluation Publications from CDIE:

Agroforestry Projects for Small Farmers: A Project Manager's Reference, by Siew Tuan Chew, A.I.D. Evaluation Special Study No. 59, January 1989 (PN-AAX-212).

Environmental Assessments of Development Projects: A Preliminary Review of A.I.D.'s Experience, by Siew Tuan Chew, A.I.D. Occasional Paper No. 17, June 1988 (PN-ABA-143).

Impact Indicators for Measuring Change in the Natural Resource Base, by Ralph J. McCracken, A.I.D. Evaluation Occasional Paper No. 34, November 1989.

Natural Resource Management: A.I.D.'s Experience in Nepal, by Siew Tuan Chew, A.I.D. Evaluation Occasional Paper No. 40, October 1990 (PN-AAX-247).

Natural Resources Management: Issues and Lessons From Rwanda, by Siew Tuan Chew, A.I.D. Evaluation Occasional Paper No. 35, April 1990 (PN-ABC-904).

A Look at CDIE's Evaluation Publication Series

Each year, CDIE publishes several types of evaluation reports, among them the following:

Technical Reports—in-depth, field-based country case studies focusing on a project or program or on a comparative cross-country analysis of a key technical evaluation issue, for example, economic-rate-of-return analysis or sustainability. CDIE conducts between five and six country case studies during the course of a program assessment.

Program Operation and Assessment Reports—a comparative analysis of the information contained in the country case studies comprising an assessment. Program Operation and Assessment Reports synthesize the findings, recommendations, and lessons learned from the individual case studies and discuss the policy and operational implications of the findings for future A.I.D. programming.

Special Studies—other types of evaluation that contribute to A.I.D.'s knowledge of special projects or programs. Evaluation desk studies, evaluations involving limited fieldwork, and long-term intensive studies fall within this series.

Program Design and Evaluation Methodology Reports—guidance on evaluation and data collection and analysis methods for project and program design.

A.I.D. Evaluation Highlights and Senior Managers Bulletins—summaries of longer reports to provide timely overviews of a report's findings, lessons learned, and recommendations for A.I.D. managers and for other interested readers in the development community.

Innovative Development Approaches—assessments of promising experimental approaches being tried by A.I.D. and other agencies to achieve priority development objectives and new policy thrusts.

Recent CDIE publications:

Evaluation of A.I.D. Child Survival Programs: Haiti Case Study, A.I.D. Technical Report No. 2, April 1992 (PN-AAX-256).

Evaluation of A.I.D. Family Planning Programs: Kenya Case Study, A.I.D. Technical Report No. 3, June 1992 (PN-AAX-257).

A.I.D. Economic Policy Reform Programs in Africa, A Synthesis of Findings From Six Evaluations, A.I.D. Evaluation Highlights No. 7 (PN-ABG-003). This *Highlights* is based on A.I.D. Program and Operations Assessment Report No. 1, December 1991 (PN-AAX-253)

A.I.D. Export and Investment Promotion Programs in Latin America and the Caribbean: Sustainability and Effective Service Delivery, A.I.D. Evaluation Highlights No. 8, May 1992 (PN-ABG-004). This *Highlights* is based on A.I.D. Program and Operation Assessment Report No. 2, June 1992 (PN-AAX-258)

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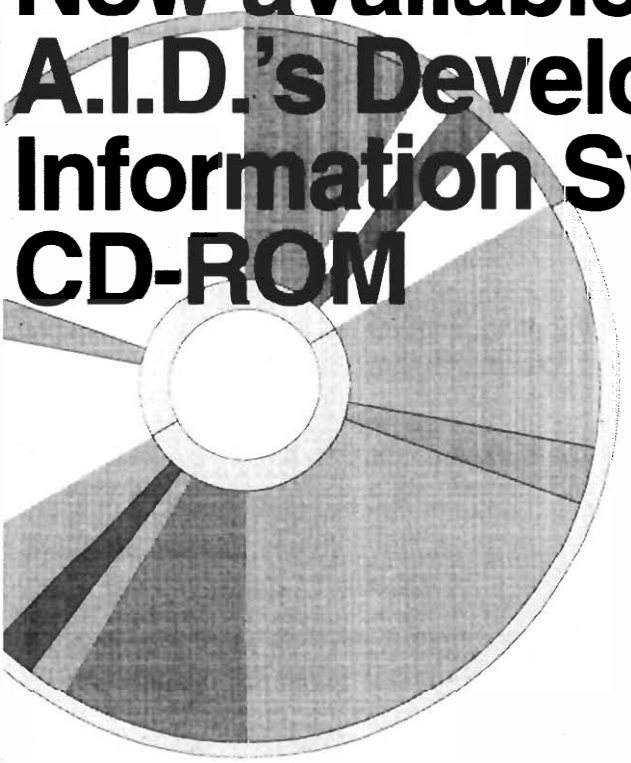

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CD-DIS will be updated and issued four times per year. Every release of the disk will include the entire, updated A.I.D. Project and Document databases. The additional space on each disk will be used to disseminate other A.I.D.-supported development information resources of wide interest, including databases, catalogs, and the full text of selected A.I.D. documents. Most of the A.I.D. documents cited on the disk may be ordered from CDIE in either paper or microfiche format.

Single subscriptions to CD-DIS will be available free-of-charge to A.I.D. offices and missions, and to qualifying host country institutions in A.I.D.-supported countries. Other organizations (contractors, universities, PVO's, etc.) will be charged for the disk at the rate of US$50 per disk, or US$120 for a subscription to four consecutively issued disks. Donor agencies and U.S. Government agencies may receive the disk on an exchange-of-information basis.

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