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**PROGRESS IN CONSERVING TROPICAL FORESTS
AND BIOLOGICAL DIVERSITY
IN DEVELOPING COUNTRIES**

THE 1987 ANNUAL REPORT TO CONGRESS ON THE
IMPLEMENTATION OF SECTIONS 118 AND 119
OF THE FOREIGN ASSISTANCE ACT, AS AMENDED



U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523



THE ADMINISTRATOR

June 27, 1988

TO THE CONGRESS OF THE UNITED STATES:

I am pleased to transmit to the Congress our report, Progress in Conserving Tropical Forests and Biological Diversity in Developing Countries. We are responding to the requirements of the 1986 amendments to the Foreign Assistance Act for annual reports on implementing Sections 118 on tropical forests and 119 on biological diversity with a unified report. The logic for a combined report is obvious. Both sections call for the conservation and management of biological resources in developing countries. They are so closely related they need to be addressed together.

In this report we present our increasingly integrated program to address these critical global concerns. We are focusing on four key programmatic directions, all of which must be pursued simultaneously if the world's biological wealth is to be maintained for present and future generations. They are: protection and conservation of natural areas; management of forest and biological resources for sustained use; rehabilitation and restoration of degraded lands to bring them back to productive capacity; and, to take pressure off natural areas while meeting local people's needs, more intensive tree crop management (agroforestry) on farm and pasture lands already under production.

In implementing these programs we have built upon the outstanding capabilities of many U.S. institutions. We believe that these organizations can help us achieve one of our major policy objectives--building the capacity of developing countries to identify and solve their environmental and natural resource problems.

We appreciate the leadership and support that the U.S. Congress has provided on these important global issues.

Sincerely,


Alan Woods

Enclosure: Annual Report

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LIST OF ACRONYMS

ADRA	Adventist Development and Relief Agency
AFR	Bureau for Africa, A.I.D.
AHE	Asociacion Hondurena de Ecologia (Honduran Ecological Association)
A.I.D.	Agency for International Development, US Department of State
ANE	Bureau for Asia and the Near East, A.I.D.
AOP	Agroforestry Outreach Project
ASEAN	Association of Southeast Asian Nations
CARE	CARE, Inc.
CATIE	Centro Agronomico Tropical para Investigacion y Ensenaza (Center for Research and Training in Agriculture)
CDIE	Center for Development Information and Evaluation, A.I.D.
CDSS	Country Development Strategy Statement
CGBD	Consultative Group on Biological Diversity
CITES	Convention on International Trade in Endangered Species
COHDEFOR	Corporacion Hondurena de Desarrollo Forestal (Honduran Forestry Development Corporation)
CRS	Catholic Relief Services
DAC	Development Assistance Committee, OECD
DAF	Development Assistance Funds
DESFIL	Development Strategies for Fragile Lands Project
EPM	Environmental Planning and Management Project
FAA	Foreign Assistance Act of 1961, as amended
FAO	Food and Agriculture Organization of the United Nations
F/FRED	Forestry/Fuelwood Research and Development Project
FLUP	Forestry Land Use Planning Project
FPEI	Forestry Private Enterprise Initiative
FSP	Forestry Support Program
FWS	Fish and Wildlife Service, US Department of the Interior

IBPGR	International Board for Plant Genetic Resources
IDEA	International Development and Energy Associates, Inc.
IIED	International Institute for Environment and Development
IITA	International Institute for Tropical Agriculture
ILCA	International Livestock Center for Africa
INRENARE	Direccion de Recursos Naturales Renouables (National Institute of Renewable Natural Resources)
IUCN	International Union for Conservation of Nature and Natural Resources
LAC	Bureau for Latin America and the Caribbean, A.I.D.
LDC	Less Developed Country
LOP	Life (or Length) of Project
NCS	National Conservation Strategy
NGO	Nongovernmental Organization
NPS	National Park Service, US Department of the Interior
NRMS	Natural Resources Management Support Project
OECD	Organization for Economic Cooperation and Development
PADF	Pan American Development Foundation
PCV	Peace Corps Volunteer
PL-480	Public Law 480, the Agricultural Trade, Development and Assistance Act of 1954, as amended
PPC	Bureau for Program and Policy Coordination, A.I.D.
PVO	Private Voluntary Organization
REDES-C.A.	Red Regional de Organizaciones Conservacionistas No Gubernamentales para el Desarrollo Sosterido de Centroamerica (Regional Network of Non-Governmental Conservation Organizations for Sustainable Development in Central America)
ROCAP	Regional Office for Central America and Panama, A.I.D.
RSSA	Resources Support Services Agreement
S&T	Bureau for Science and Technology, A.I.D.
TECDA	Thai Environmental and Community Development Association
TFAP	Tropical Forestry Action Plan
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USDA	United States Department of Agriculture
WRI	World Resources Institute
WWF-US	World Wildlife Fund-US

EXECUTIVE SUMMARY

During 1987, the Agency for International Development (A.I.D.) continued a vigorous pursuit of tropical forestry conservation and biological diversity protection goals set forth in Sections 118 and 119 of the Foreign Assistance Act of 1961 (as amended).

By the end of the year, twenty-four A.I.D. country missions were working on or had completed background assessments of conservation needs in biological diversity and tropical forests, as called for in the legislation.

1987 was a landmark year for A.I.D.'s evolving program to conserve biological diversity. A.I.D. obligated \$2,388,000 for 21 new activities in 15 developing countries to directly protect and conserve wild plants and animals, as authorized in Section 119 of the FAA. Another \$2,500,000 was obligated for biodiversity activities as part of other Agency projects. Other major steps were also taken that have provided a solid foundation on which to continue to build the program:

1. A.I.D. established an internal Biological Diversity Working Group with responsibility for reviewing new projects and setting priorities.
2. A.I.D. supported the formation of a donor group, the Consultative Group on Biological Diversity, composed of US private foundations and A.I.D., to exchange information and encourage collaboration and increased funding for biodiversity conservation in developing countries.

During fiscal year (FY) 1987, A.I.D.'s bilateral tropical forestry program supported 146 forestry projects and projects with forestry components in 46 developing countries. Funding obligations during FY 1987 for the forestry activities in these projects totaled \$56.2 million.

In many countries, A.I.D.'s tropical forestry objectives continued to receive a strong boost from food aid. During FY 1987, some 38 Public Law 480 (PL-480) food-aid projects in 23 countries contained forestry and closely related natural resource components and received food commodity and local currency allocations estimated at \$25.9 million. Most of the food-aid projects were in Africa. Many were carried out with the support of private voluntary organizations (PVOs).

Combining bilateral and food-aid assistance, total commitments during FY 1987 under A.I.D.'s tropical forestry program reached an annual level of \$82.1 million.

Collaborations with, and expanded reliance on, other US organizations in advancing biological diversity and tropical forestry programs were achieved during 1987 through partnerships with the Peace Corps, the Forest Service (Department of Agriculture), the Fish and Wildlife Service and the National Park Service (Department of the Interior), and numerous private voluntary organizations and other nongovernmental organizations. A.I.D. continued active involvement in donor coordination through participation in international efforts directed at raising awareness, setting priorities, and encouraging commitments of needed resources from both developing country and international sources.

A.I.D.'s Africa Bureau sharpened the focus and direction of biological diversity and tropical forestry efforts in that region by issuing a Plan for Supporting Natural Resources Management in Sub-Saharan Africa in February 1987. Steps taken during 1987 to implement the plan in Africa, together with other actions taken by the Agency to augment its technical staff and internal training efforts, have increased A.I.D.'s capacity to successfully undertake biological diversity, tropical forestry, and natural resource management initiatives.

Chapter 1

A.I.D.'S TROPICAL FORESTRY AND BIOLOGICAL DIVERSITY PROGRAMS

Most A.I.D.-assisted countries depend heavily on their renewable natural resource endowments for development, and they will continue to do so for a very long time. Yet, until the late 1960 s, maintaining the natural resource base in developing countries was not a major concern. Natural resources were viewed mainly as a source of income to be invested in the manufacturing and governmental sectors located in the rapidly growing urban areas. In effect, renewable resources were being mined to support development in other sectors.

This exploitation increased soil erosion and salinization. Deforestation and land degradation accelerated. Marginal lands not suited to annual crop production were brought into cultivation. Coastal habitats were destroyed without an understanding of the resulting impact on nearby fisheries or other coastal resources.

Despite growing awareness in the mid-1970's that the degradation of the resource base was a major factor in declining rates of agricultural production and economic growth, vast areas of woodlands and forests, especially tropical moist forests, were converted to other uses at alarming rates. Natural forests were used for crop production, livestock operations, and homesteads, frequently in ways that could not be sustained. Moist tropical forests especially were being cleared, logged, and burned for their current economic value with little attention to managing them for a long-term flow of goods and services.

In just 25 years, between 1955 and 1980, the extent of tropical deforestation matched the loss of tropical forests over the previous two centuries. A vast frontier was rapidly being degraded or destroyed.

In Africa, an estimated 1.3 million hectares of closed tropical broadleaf forest and 2.3 million hectares of open tropical woodlands were cleared annually for timber and agricultural uses. Much larger areas were degraded through grazing, fire, drought, cutting for fodder, and harvesting for fuelwood and construction wood.

In tropical Asia, 1.8 million hectares of closed forest were converted to other uses between 1976 and 1980 as a result of lowland village encroachment, shifting agriculture, and planned migration of people from crowded settlements. Forest area reduction in the Himalayan watershed, which supports agriculture and stable water supplies for much of Nepal, Northern India, and Bangladesh, was estimated at 40% between 1950 and 1980.

In Latin America, there were high rates of deforestation in Peru, Bolivia, Ecuador, Venezuela, Colombia, and Mexico and in the Central American countries of El Salvador, Costa Rica, Honduras, Guatemala, and Nicaragua. In Haiti, forest cover was reduced to less than 10% of the land area, and deforestation continues.

This rapid decline and deterioration in tropical forests has also had a serious impact on biological resources. Forests in the tropical zone are some of the richest sources of plant and animal species. Although estimates vary, it is thought that about two-thirds of all species on earth are found in the tropics, about half in the moist tropics. At current rates of tropical deforestation, an estimated 15% of all species could be lost over the next two decades.

Recognizing the importance of tropical forests and biological diversity to development, Congress, in 1977, 1979, 1983, and 1986 amended the Foreign Assistance Act (FAA) to include Section 117 on management of natural resources, Sections 118 and 103 on tropical forests, and Section 119 on biological diversity. Important requirements added in 1986 were: a Congressional funding earmark of \$2.388 million for new activities to conserve biological diversity; preparation of up-to-date assessments of tropical forests and biological diversity in the Country Development Strategy Statements (CDSSs) or other country plans; and the preparation of an annual report to Congress on how the legislation was being implemented. (See Appendix 3 for complete text of Sections 118 and 119.)

Four distinct but interrelated approaches are being pursued by A.I.D. to address conservation and management of tropical forests and biological diversity. As discussed in Chapter 2, they include protection of tropical forest and other natural habitats, sustained production of plant and animal products and services from natural areas, rehabilitation and reforestation of cut-over and degraded areas, and intensive management for improved plant and animal yields through agroforestry. However, to respond to the requirements of FAA Sections 118 and 119, the Agency's activities are discussed separately in the balance of this chapter.

A.I.D.'s Tropical Forestry Program

The Agency's Forestry Sector Strategy specifies three principal goals for the Tropical Forestry Program: to assist countries in the management of their forests, range, and other wildland resources for long-term sustained production; to assist other sectors to achieve sustained production of food, water, and energy in ways that conserve forests and natural resources; and to develop plant and animal management programs that will protect and maintain biological diversity.

To achieve these goals, A.I.D. carries out forestry projects in most A.I.D.-assisted countries; helps governments revise policies and develop incentives for greater individual and private participation; develops human resources and organizational capabilities to deal with forestry programs; expands the role of private enterprise; and takes advantage of all available instruments of assistance, including the Public Law 480 food program, coordination with other sectors, and collaboration with other donors.

During FY 1987, A.I.D. supported 146 forestry projects in 46 developing countries. Seven new projects were started during the fiscal year, and 17 projects were completed. The total life-of-project (LOP) funding for forestry projects active in FY 1987 was \$586.7 million. Obligations in FY 1987 totalled approximately \$56.2 million. (See Table 1-1.)

In terms of numbers, forestry projects were rather evenly distributed among the three regions of A.I.D. activity. There were 45 in Africa, 39 in Asia and the Near East, and 46 in Latin America and the Caribbean. Sixteen projects were supported by the Central Bureaus: twelve in the Bureau for Science and Technology, two in the Bureau for

Table 1-1

A.I.D.'S TROPICAL FORESTRY PROJECTS BY REGION, FY 1987

Region	Number of Countries With Projects	Number of Projects Active in FY 1987	Number of New Starts	Number Completed	LOP Forestry Obligations (in \$1000)	FY 1987 Forestry Obligations (in \$1000)
Africa	23	45	3	3	95,150	13,960
Asia/Near East	11	39	1	6	273,212	17,337
Latin America/ Caribbean	12	46	3	8	140,241	17,398
Central Bureaus	n/a	16	0	0	78,103	7,488
Totals	46	146	7	17	\$586,706	\$56,183

Source: Forestry Project Database, Forestry Support Program, IDEA Inc.

Note: Many forestry projects are components of larger natural resource and agricultural projects. To determine the forestry component, a percentage of the total LOP funding was estimated for significant forestry activities based on judgments made by A.I.D. staff and contractors. This percentage was then applied to each year's obligations to arrive at annual figures. Projects can receive funding obligations at any time during the life of the project.

Food for Peace and Voluntary Assistance, and two in the Bureau for Program and Policy Coordination.

Maps 1-1, 1-2, and 1-3 show the location of all A.I.D.-assisted countries with forestry projects and the number of forestry projects in each. A few projects are regional or global in scope and can provide technical help to any A.I.D.-assisted country that requests it.

Additional forestry activities are supported by food aid. In FY 1987, 38 projects, totaling \$25.9 million, were supported with food commodities or local currency generated by the sale of concessionary food through the provisions of Public Law 480, the Agricultural Trade, Development and Assistance Act of 1954 (PL-480). Most of the projects were in Africa. Many were carried out with the support of private voluntary organizations (PVOs), such as CARE, the Adventist Development and Relief Agency (ADRA), and Catholic Relief Services (CRS).

In FY 1986, obligations for forestry were estimated at \$53.0 million, excluding food aid. In FY 1987, they were estimated at \$56.2 million, a 6% increase.

Forest Management Strategies

Most of A.I.D.'s forestry projects can be classified by the primary management approach involved: protection of natural forests, management of natural forests for sustained use, reforestation of degraded forests, or management for improved agricultural yields through agroforestry (the planting of multi-purpose tree species on agricultural lands).

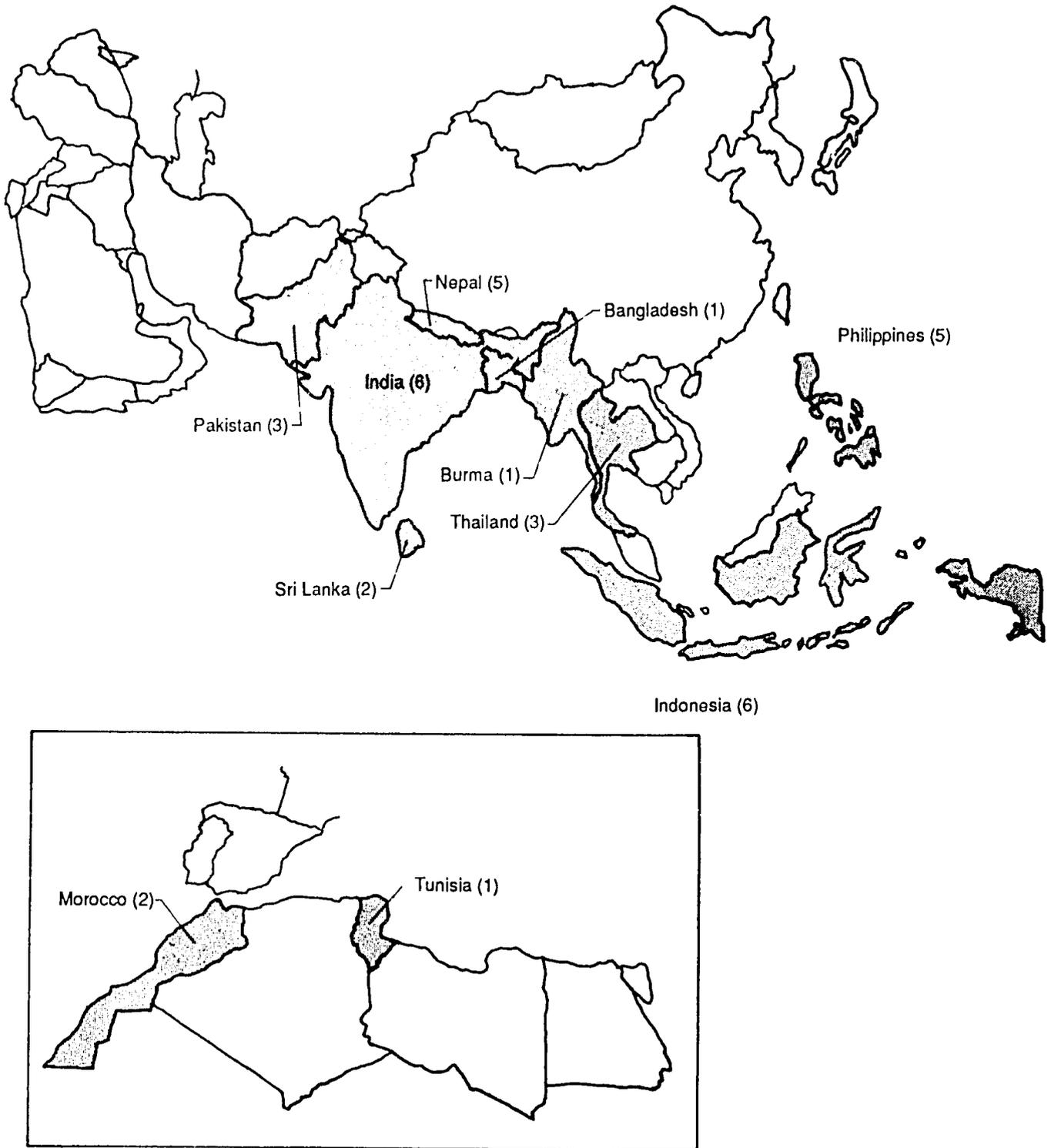
In terms of life-of-project obligations, approximately 1% of funds are allocated to projects that have protection of natural forests as their primary focus. About 12% of funds go to projects that focus on managing existing forests for sustained use, including for timber and other products; about 23% on projects focused on rehabilitation and restoration; and 62% on intensive on-farm tree crop management for improved yields. Two percent, primarily training projects, have no direct on-the-ground intervention. (See Table 1-2.)



Note: Number of forestry projects are indicated in parentheses. The map does not include in-country activities of centrally funded projects nor eight multi-country regional projects.

MAP 1-2

A.I.D.-ASSISTED COUNTRIES IN ASIA AND THE NEAR EAST WITH TROPICAL FORESTRY PROJECTS, FY 1987



Note: Number of forestry projects are indicated in parentheses. The map does not include in-country activities of centrally funded projects nor four multi-country regional projects.

MAP 1-3

A.I.D.-ASSISTED COUNTRIES IN LATIN AMERICA AND THE CARIBBEAN WITH TROPICAL FORESTRY PROJECTS, FY 1987



Note: Number of forestry projects are indicated in parentheses. The map does not include in-country activities of centrally funded projects nor eight multi-country regional projects.

Table 1-2

A.I.D.'S TROPICAL FORESTRY PROJECTS BY MANAGEMENT STRATEGY, FY 1987

LOP Forestry Obligations (in \$1000)
(number of projects)

Region	Protection of Natural Forests	Sustained Management of Natural Forests	Rehabilitation and Reforestation	Agroforestry	No Field Intervention*	Totals
Africa	1,700 (1)	12,630 (7)	39,831 (13)	38,540 (18)	2,449 (6)	95,150 (45)
Asia/Near East	4,285 (3)	250 (1)	54,453 (11)	204,132 (19)	10,092 (5)	275,712 (39)
Latin America/ Caribbean	1,395 (4)	54,179 (10)	36,690 (14)	47,977 (18)	0 (0)	140,241 (46)
Central Bureaus	238 (1)	1,689 (4)	4,170 (3)	72,006 (8)	0 (0)	78,103 (16)
Totals	\$7,618 (9)	\$68,748 (22)	\$135,144 (41)	\$362,655 (63)	\$12,541 (11)	\$586,706 (146)

Source: Forestry Project Database, Forestry Support Program, IDBA Inc. and IIBD

* Projects with no field intervention were primarily out-of-country training.

Note 1: Projects were allocated to one of the four management strategies by A.I.D. staff and contractors based on the principal focus of the project. Many projects, especially the larger ones, have more than one management strategy.

Note 2: Many forestry projects are components of larger A.I.D. projects.

As the figures demonstrate, the major emphasis in A.I.D.'s current forestry program is to support stable farming practices through agroforestry, as required in Section 118 (part c, para. 5, 6, 9), and through increased production on cleared or degraded land through rehabilitation and reforestation (part c, para. 7). Although less is spent supporting protection and management of natural tropical forests for sustainable production (part c, para. 1, 10), more and more agroforestry and reforestation projects are aimed at meeting the needs of low income people living in buffer zones around protected areas.

While A.I.D. supports activities in all major tropical forest ecosystems (forested wetlands, lowland moist forests, tropical dry forests, dry savannah woodlands, and montane forests), Agency programs are concentrated in marginal areas with needy populations and where there is demand to increase the levels of crop and livestock production. In Africa, for example, considerably more funds are aimed at supporting tree growing in the Sahel and other marginal semi-arid areas than in protecting or managing remaining lowland moist tropical forests, even in countries with high rates of deforestation.

For projects started in the past two years (FY 1986 and FY 1987), the emphasis has been somewhat modified. More funds are going to support activities that improve prospects for the sustained use of tropical forests and somewhat fewer for direct rehabilitation of degraded areas. Because of the recent emphasis on conserving biological diversity, there has also been an increase in funding to protect national parks and endangered species in tropical forests and other important tropical ecosystems, together with a shift of rehabilitation and agroforestry activities to meet the economic needs of local people in buffer zones around protected areas.

A.I.D.'s tropical forestry program is becoming increasingly integrated within the larger programs of natural resource management and agricultural development. In addition, forestry projects are giving more attention to social issues, long-term economic issues (including ties to market forces and income and employment opportunities), and public and private sector roles. New forestry, natural resource management, and agricultural development projects under design or being implemented in Honduras, Ecuador, Nepal, and Rwanda combine these emerging trends.

A.I.D. traditionally provides developing countries with resources to support institution building and training, conduct research, provide for public education, and undertake direct site management. One of A.I.D.'s principal goals is to develop self-sustaining institutions, and this can best be done through interaction with local people coupled with training, demonstrations, and research.

Many of A.I.D.'s projects test new ways of growing trees, selecting seedlings, conserving soils, training extension workers, dealing with social and economic incentives, or managing national parks. Almost all the direct field work is done by citizens of the country. Through experimentation and evaluation, some techniques are found to be more successful than others. Working in 70 countries and cooperating with other donors, A.I.D. staff can share its knowledge widely and encourage the transfer and adoption of practical solutions to development problems.

The emphasis in the forestry program is given to strengthening institutions and supporting training programs, as required in Section 118 (part c, para. 4). Of the 146 forestry projects active in FY 1987, approximately 60% were targeted primarily to training and institution building, about 10% supported research, and the remainder dealt directly with on-site management.

Planned New Projects

In last year's report to Congress, A.I.D. identified 19 new projects with planned LOP obligations estimated at \$161.7 million. Eleven of those projects have been funded. Some were not acceptable to the host governments and were dropped for the time being. Others are awaiting funding, and some, such as the \$35.7 million Panama Natural Resource Management Project, were not fully initiated because the A.I.D. assistance program in that country was suspended.

At the beginning of FY 1988, 13 new projects for FY 1988 and FY 1989 totaling \$101.3 million had been proposed. (See Table 1-3.) Included are \$78.6 million LOP funding for projects in Asia and the Near East, \$1.9 million LOP for projects in Africa, and \$20.8 million LOP for projects in Latin America and the Caribbean.

Table 1-3

A.I.D.'S TROPICAL FORESTRY PROJECTS PLANNED TO BEGIN IN FY 1988 AND FY 1989

Region Country/Project Title/ Project Number	Starting Date (Fiscal Year)	Planned LOP Forestry Obligations (in \$1000)
AFRICA		
Mauritania/Mauritania River Valley Development/6820237	1988	100
Rwanda/Natural Resources Management/6960129	1989	1,750
Africa Total		<u>\$1,850</u>
ASIA/NEAR EAST		
Bangladesh/Agroforestry Research and Extension /3880062	1989	11,600
Bangladesh/PVO Co-financing III/3880072	1988	175
Burma/Agriculture Research and Development/4820012	1988	565
India/University Forestry Research, Education and Development (UFRED)/3860488	1988	20,000
India/Agricultural Research and Education/3860505	1988	5,000
Nepal/Institute of Forestry/ 3670154	1989	8,700
Nepal/Rapti Development Project II/3670155	1988	8,000

Nepal/Forestry Development/3670158	1988	7,000
Thailand/Management of Natural Resources/4930345	1988	17,600
Asia/Near East Total Table 1-3 (cont.)		<u>\$78,640</u>

LATIN AMERICA/
CARIBBEAN

Bolivia/Private Sector Agricultural Research and Extension 5110595	1988	836
Honduras/Forestry Development/ 5220246	1988	20,000
Latin America/Caribbean Total		<u>\$20,836</u>
Total		<u>\$101,326</u>

Source: Forestry Project Database, Forestry Support Program, IDEA Inc.

Note: Many forestry projects are components of larger A.I.D. projects.

Regional and Country Overviews

Under Development Assistance Funds, projects are the principal means by which United States bilateral aid is transferred to developing countries. Projects may take years to plan, fund, implement, and evaluate. Recognition of the linkages between natural resource management and sustainable agriculture has led to a growing tendency to create multifaceted natural resource management projects that can be amended and extended as needed based on experience and ongoing evaluations. Depending on the availability of funds in the mission, a project may be funded all at once, or it may receive incremental obligations over the life of the project, based on annual availability of funds.

The level of funding for forestry is based on the resource needs of the country and availability of funds, interest and commitment on the part of the host government, the A.I.D. mission strategy, technical and administrative capacity within the country and within A.I.D., and the programs of other donors.

The average life of a forestry project is about five years, not including project planning. A few, such as the Forestry/Fuelwood Research and Development Project (F/FRED) and the Forest Resources Management Project, are authorized for 10 years.

India, with its extensive human needs and natural resource problems, has received the largest amount of project support: \$150.2 million in LOP funding as of FY 1987, \$13.6 million in funds for FY 1987, not including PL-480 programs. (See Table 1-4.)

The largest projects, in terms of funding, have also been developed in India, in support of social forestry, training, and education. (See Table 1-5.) African projects, in line with lower A.I.D. mission annual budgets, population size, and the economic and technical capacity of many of the countries, are smaller than those in Asia and Latin America. They average about \$2.1 million in LOP funding. Latin American projects average \$3.0 million; Central Bureau projects, \$4.9 million; and Asia and the Near East projects, \$7.0 million.

Table 1-4

COUNTRIES RECEIVING THE LARGEST AMOUNT OF TROPICAL FORESTRY PROJECT FUNDING
IN LOP OBLIGATIONS AND FY 1987 OBLIGATIONS

Country	LOP Forestry Obligations (in \$1000)	Country	FY 1987 Forestry Obligations (in \$1000)
1. India	150,160	1. India	13,580
2. Panama	38,970 (suspended)	2. Panama	6,659 (suspended)
3. Pakistan	35,240	3. Haiti	5,795 (suspended)
4. Philippines	27,837	4. Senegal	4,500
5. Cameroon	22,315	5. Sudan	3,915
6. Sudan	19,310	6. Nepal	1,984
7. Haiti	18,328 (suspended)	7. Cameroon	1,491
8. El Salvador	17,581	8. Mexico	1,382
9. Indonesia	16,164	9. Philippines	850
10. Nepal	15,030	10. Mali	750

Source: Forestry Project Database, Forestry Support Program, IDRA Inc.

Note: Many forestry projects are components of larger A.I.D. projects.

Table 1-5

LARGEST TROPICAL FORESTRY PROJECTS IN TERMS OF OBLIGATIONS, LOP AND FY 1987

Project Title (Number)	LOP Forestry Obligations	FY 1987 Forestry Obligation
Country	(in \$1000)	(in \$1000)
1. National Social Forestry Support (3860495) India	84,700	12,500
2. Forestry/Fuelwood Research and Development (9365547) Global	40,000	2,567
3. Natural Resource Management (5250248) Panama (suspended)	35,700	6,659
4. Forestry Planning and Development (3910481) Pakistan	30,600	0
5. Maharashtra Social Forestry (3860478) India	30,000	0
6. Madhya Pradesh Social Forestry (3860475) India	25,000	0
7. Forest Resources Management (9365519) Global	19,821	2,207
8. Public Sector Employment (5190256) El Salvador	17,581	0
9. Rural Energy Development (4920375) Philippines	15,000	0
10. Agricultural Cereals Research (6316052) Cameroon	13,069	691

Source: Forestry Project Database, Forestry Support Program, IDRA Inc.

Note: Many forestry projects are components of larger A.I.D. projects.

Africa

A total of 45 projects, valued at \$95.2 million (LOP), are being carried out in 23 African countries. In FY 1987 obligations for forestry projects in Africa totaled \$14.0 million. Most of these projects are aimed primarily at reforestation and watershed management and intensive on-farm tree crop management through agroforestry.

Most A.I.D.-assisted countries in Africa have at least one forestry project or a forestry component of a larger natural resource project. Sudan, Senegal, and Cameroon each have three or more projects. Eight projects are regional in scope. These include the African Manpower Development II Project, the Regional Remote Sensing II Projects in East and West Africa, and the new \$8.5 million Natural Resources Management Support Project (NRMS), which includes a \$4.3 million component for forestry assessment, design, and training. (For a complete list of forestry projects by country, see Appendix 1.)

The NRMS project has been established to help carry out A.I.D.'s Plan for Supporting Natural Resources Management in Sub-Saharan Africa, which was developed to address the continuing environmental and development crisis in Africa. The plan calls for A.I.D. to integrate natural resource and forestry management within existing rural development and agricultural projects; make a long-term commitment to build education and training programs; support local involvement (particularly of women, the principal producers of food crops) in programs that are economically sustainable; and expand cooperation with other donors and PVOs and NGOs working in Africa.

Asia and the Near East

Eleven countries in Asia and the Near East (ANE) have A.I.D.-supported forestry projects. These projects total \$273.2 million in LOP funding: \$17.3 million in obligations in FY 1987. Of the 39 projects in ANE, three-fourths are aimed primarily at forest rehabilitation and intensive on-farm tree crop management through agroforestry. Three projects are regional, including the ASEAN (Association of Southeast Asian Nations) Watershed Management Project and Regional Environmental Activities.

India has six projects, totaling \$150.2 million in LOP funding, including the \$84.7 million National Social Forestry Support Project and the \$30.0 million Maharashtra Social Forestry Project. In Asia, as in Africa, most of A.I.D.'s project portfolio is aimed at improving and maintaining the resource base that supports agriculture, most frequently through agroforestry. But this emphasis is changing. A proposed project in Thailand will focus on overall natural resource management, including natural forest management.

Latin America and the Caribbean

The Latin America and Caribbean region (LAC) supports 46 forestry projects, with LOP funding of \$140.2 million. Included are 15 projects in Central America, 18 in the Caribbean islands, and 13 in South America. Rapid deforestation and inappropriate land use have left hillsides degraded in the region, making it difficult for poor farmers to produce sufficient crops to meet their needs for food or marketable crops for income. In Latin America, more than in the other regions, A.I.D.'s strategy has attempted to integrate protection and management of biologically diverse forest areas with sustained use for timber and other forest products and rehabilitation of degraded hillsides.

Regional projects include the Development Strategies for Fragile Lands (DESFIL) Project, a ten-year, technical assistance effort funded by the Bureau for Science and Technology. Its principal purpose is to help halt degradation of marginal steep slopes and lowland humid areas through policy reforms, changes in land-use and conservation strategies, changing incentives that will support farmer investments in land conservation, and extension services.

Central Bureaus

Central Bureaus in Washington support 16 projects, including the \$19.8 million Forest Resources Management Project, which provides funding for the Forestry Support Program (FSP) and a joint project with the Peace Corps. The Forestry/Fuelwood Research and Development Project (F/FRED) supports collaborative research networks in Asia and Africa aimed at developing and improving multipurpose tree species and accelerating their socio-economic acceptance. It has LOP funding of \$40.0 million over 10 years.

A.I.D.'s tropical forestry program has become an important and integral part of A.I.D.'s overall development effort. Forestry is increasingly viewed as an important means to increase employment opportunities and income-generating activities of the rural poor, and forest management is seen as essential for the long-term sustained production of crops and livestock and the maintenance of environmental services.

A.I.D.'s Biological Diversity Program

1987 was a landmark year for A.I.D.'s evolving program to conserve biological diversity. A.I.D. obligated \$2,388,000 for 21 new activities in 15 developing countries to directly protect and conserve wild plants and animals, as authorized in Section 119 of the FAA. Another \$2,500,000 was obligated for biodiversity activities as part of other Agency projects. Other major steps were taken that have provided a solid foundation on which to continue to build the program.

First, A.I.D. established an internal Biological Diversity Working Group with responsibility for reviewing new projects and setting priorities. The working group is composed of technical staff from regional and central bureaus.

Second, the Agency has supported the formation of a donor group, the Consultative Group on Biological Diversity, composed of US private foundations and A.I.D. Its goal is to exchange information and encourage collaboration and increased funding for biodiversity conservation in developing countries.

In addition, the Agency has created a number of policy and technical innovations that will give missions increasing support for biological diversity activities in host countries. These include technical assistance to prepare biological diversity and tropical forest assessments, action plans, and project designs and the development of a conservation activities database.

In line with Section 119 of the FAA, A.I.D. has focused its biological diversity conservation activities on:

- o helping countries protect and maintain wildlife habitats and develop sound wildlife management and plant conservation programs;

- o establishing and maintaining wildlife sanctuaries, reserves, and parks;
- o identifying, studying, and cataloging animal and plant species; and
- o assisting countries to enact and enforce anti-poaching measures.

During FY 1987, A.I.D. supported 44 separate biodiversity activities in over 22 countries, with a total obligation of \$4,888,000. (See Table 1-6.) (See Appendix 2 for a list of biological diversity activities and FY 1987 obligations.)

Approximately 39% of these funds were obligated by Central Bureaus. Asia and Near East obligations represent about 25%; Latin America and the Caribbean, about 21%; and the African Bureau, about 15%.

Of the 44 biodiversity activities, twelve are primarily intended to support the establishment and management of parks, protected areas (wildlife refuges, scientific research reserves, Biosphere Reserves, and other nature reserves), and buffer zones. (See Table 1-7.) Obligations in FY 1987 for protected areas projects totaled \$1,596,000, or 33% of total biodiversity obligations.

Twenty-eight activities supported plant and wildlife conservation programs. Most of these activities are aimed at maintaining populations of wild species. The activities are not limited to officially protected areas. Total obligations for wildlife and plant conservation programs in FY 1987 were \$2,583,000, or 53%.

Four activities were aimed primarily at species identification, inventory, and assessment. Obligations in FY 1987 for this type of activity totaled \$709,000 or 15%.

Of the 44 biodiversity activities, 17 have research as their primary goal, 12 have training and institution strengthening, 11 support direct site management, and 4 support policy dialogue and public awareness.

Earmarked Activities

In FY 1987 \$2,388,000 was obligated for 21 new biological diversity conservation activities to meet the Congressionally mandated requirement in Section 119(c).

Table 1-6

A.I.D.'S BIOLOGICAL DIVERSITY CONSERVATION ACTIVITIES BY REGION, FY 1987

Region	Number of FY 1987 Earmarked Activities	FY 1987 Obligations for Earmarked Activities (in \$1000)	Number of Additional Activities	FY 1987 Obligations for Additional Activities (in \$1000)	Total Number of Activities	Total Obligations (in \$1000)
Africa	4	550	3	200	7	750
Asia/Near East	7	618	5	600	12	1,218
Latin America/ Caribbean	5	500	5	518	10	1,018
Central Bureaus	5	720	10	1,182	15	1,902
Totals	21	\$2,388	23	\$2,500	44	\$4,888

Source: Biological Diversity Activities Database, IIRD.

Note: Statistics used in this section come from the Biological Diversity Activities Database maintained for A.I.D. by the Fish and Wildlife Service and the International Institute for Environment and Development. All activities that qualify for inclusion, whether funded by the FY 1987 earmarked funds or not, must meet definitions compatible with those under Section 119(b) of the Foreign Assistance Act.

Table 1-7

A.I.D.'S BIOLOGICAL DIVERSITY CONSERVATION ACTIVITIES BY TYPE, FY 1987

Region	Parks and Protected Areas/Buffer Zones		Wildlife/Plant Conservation Mgt.		Species Assessments		Total	
	Number	FY 1987 Obligation (in \$1000)	Number	FY 1987 Obligation (in \$1000)	Number	FY 1987 Obligation (in \$1000)	Number	FY 1987 Obligation (in \$1000)
Africa	3	400	4	350	0	0	7	750
Asia/Near East	3	127	8	701	1	390	12	1,218
Latin America/ Caribbean	5	739	4	179	1	100	10	1,018
Central Bureaus	1	330	12	1,353	2	219	15	1,902
Totals	12	\$1,596	28	\$2,583	4	\$709	44	\$4,888

Source: Biological Diversity Activities Database, IIRD.

(Earmarked funds, reduced by Gramm-Rudman, could only be spent on new activities and had to be fully funded.)

To meet the requirements of the legislation and establish agency-wide procedures, the Agency's Biological Diversity Working Group was established. Two sets of criteria, administrative and ecological, are used to review potential activities. (See Appendix 4.) Project submissions had to meet the requirements of Section 119(b) and have the support of the missions and the host country before they were given further consideration. Submissions were also expected to maximize the money actually reaching the field (through matching grants from collaborating institutions whenever possible) and relate effectively to the economic needs and objectives of the country. Activities were to be distributed among a variety of ecosystems in different geographic areas; be targeted to species and habitats that were threatened, important, or potentially valuable to humans; and be able to be sustained after A.I.D. funding ended. (A description of each earmarked activity appears in Appendix 6.)

In FY 1987, earmarked activities were located in 15 countries, with regional projects providing support to those and other A.I.D.-assisted countries. (See Table 1-8.) Latin America and Caribbean activities focused on establishing and maintaining parks and protected areas; the other regions focused principally on wildlife conservation and species assessments and inventories.

Of the 21 earmarked activities, 14 were matched with funds from other organizations. In FY 1987, these contributions exceeded \$3.59 million. The World Wildlife Fund-US was the largest nongovernmental collaborator.

Two activities have exceptional potential for leverage. One is the A.I.D./Peace Corps Biodiversity Initiative Project, which provided a grant of \$150,000 to support the Peace Corps to integrate biological resource conservation into existing training programs and increase the number of Peace Corps volunteers working on conservation activities. The other is the Consultative Group on Biological Diversity, discussed in more detail in Chapter 3.

Non-Earmarked Activities

In FY 1987, funds were made available for 23 on-going and new biological diversity activities over and above the

Table 1-8

BIOLOGICAL DIVERSITY CONSERVATION ACTIVITIES FUNDED BY THE
CONGRESSIONAL BARNARK, FY 1987

Project Title	Country	FY 1987 Obligation
AFRICA		
Rhino Conservation	Kenya	50,000
Madagascar Wildlands and Human Needs	Madagascar	200,000
Niger Delta Wetlands Conservation	Mali	150,000
Wildlife Management at Mweka College	Tanzania	150,000
Africa Total		<u>\$550,000</u>
ASIA/NEAR EAST		
Conservation Professional Training	Burma	50,000
Indigenous NGO Support	Indonesia	54,000
Rhino/Water Buffalo Interactions with Humans	Nepal	75,000
Philippines Biological Diversity Survey and Action Plan	Philippines	78,000
Thailand Biodiversity Grants	Thailand	60,856
Alternatives to Rhinoceros- Horn-Dagger Handles	Yemen	7,000
Biological Diversity Small Grants Program	Regional	293,144
Asia/Near East Total		<u>\$618,000</u>

Table 1-8 (cont.)

LATIN AMERICA/ CARIBBEAN		
Hol Chan Marine Park	Belize	60,000
BOSCOSA (Corcovado National Park Buffer Zone)	Costa Rica	75,000
Botanical Survey of Eastern Ecuador	Ecuador	100,000
National Marine Park	Haiti	65,000
Yanachaga/Chemillen National Park	Peru	200,000
Latin America/Caribbean Total		\$500,000
CENTRAL		
Biological Diversity Technical Support	Global	270,000
AID/Peace Corps Biodiversity Initiative	Global	150,000
Biological Diversity Consultative Group	Global	150,000
Economic Incentives for Biological Diversity Conservation I	Global	50,000
Techniques for Monitoring and Evaluating Trends in Biological Diversity	Global	100,000
Central Total		\$720,000
Total		\$2,388,000

Source: Biological Diversity Activities Database, IIBD.

earmarked funds. These activities received \$2,500,000 in FY 1987 obligations. A number were funded in previous years as well. (See Table 1-9.) Of the 23 activities, 10 were funded by Central Bureaus (mostly research and institution building), 3 by Africa, 5 by Asia and the Near East, and 5 by Latin America and the Caribbean.

Biological resource conservation activities will continue to increase. It is a goal of the Agency to incorporate biodiversity conservation in all environmental, forestry, natural resource, and water resource projects and to work with country missions and host-country leaders to enhance biological diversity in many other projects and sector activities, including agriculture and rural development, education and training, and various forms of economic support.

Table 1-9

ONGOING AND NEW BIOLOGICAL DIVERSITY ACTIVITIES
 FUNDED BY NON-BARMARKED DEVELOPMENT ASSISTANCE, FY 1987

Project Title	Country	FY 1987 Biodiversity Obligation
AFRICA		
Bururi Forest	Burundi	0*
Juba Development Analytic Studies	Somalia	0*
National Park Service Resources Support Services Agreement	Regional	200,000
Africa Total		<u>\$200,000</u>
ASIA/NEAR EAST		
Plant Genetic Resources	India	390,000
Endangered Species and Habitat Study	Tunisia	13,000
Mahawell Environmental Project	Sri Lanka	0*
Regional Environmental Activities	Regional	120,000
Project Development and Support	Regional	77,000
Asia/Near East Total		<u>\$600,000</u>

Table 1-9 (cont.)

LATIN AMERICA/ CARIBBEAN		
Nature Tourism in Latin America	Costa Rica	63,000
EDONAT II	Ecuador	0*
Natural Resources Management (suspended)	Panama	339,000
Smithsonian Protocol for Biodiversity Indicators	Regional	53,000
Organization of Tropical Studies Training Course	Regional	63,000
Latin America/Caribbean Total		<u>\$518,000</u>
CENTRAL		
Conservation Data Center	Bolivia and Panama	0*
Biodiversity Conservation in Development	Global	0*
Coastal Resources Management	Ecuador, Sri Lanka, Thailand	156,000
Environmental Planning and Management	Global	217,000
Stock Assessment of Fisheries	Global	135,000
CGIAR (Support to International Board on Plant Genetic Resources)	Global	150,000
Development Strategies for Fragile Lands	Latin America	75,000
Wildlands and Human Needs	Global	330,000

Table 1-9 (cont.)

Science Advisor's Small Grants Program	Nepal	69,000
Economic Incentives for Biological Diversity Conservation II	Global	50,000
Central Total		<u>\$1,182,000</u>
TOTAL		<u>\$2,500,000</u>

Source: Biological Diversity Activities Database, IIED

* Activity received prior-year funding.

Chapter 2

MANAGING TROPICAL FORESTS AND BIOLOGICAL DIVERSITY FOR ECONOMIC DEVELOPMENT

The natural resource base required to support rural development, particularly on lands that are only marginally productive, has been rapidly deteriorating. Unless this rate of deterioration is slowed and reversed, remaining natural areas will continue to be converted to crop and livestock use, with the land eventually becoming so degraded it will not support even a low standard of living. Those who depend on these resources for their livelihoods will suffer. Further erosion of rural wealth and increasing migration of the poor to already overburdened urban areas will be an unavoidable outcome, causing even greater economic and social problems in developing countries.

In this section, four complementary approaches to resource management are presented as the foundation for A.I.D.'s tropical forestry and biological diversity programs. Used in concert, they can help developing countries improve rural income and wealth, conserve forest resources, maintain watershed and environmental services, and protect biological diversity.

The first approach is outright protection of threatened and endangered species and of remaining natural tropical forests and other biologically diverse natural ecosystems. The three others emphasize what can be gained through a combination of sustained use of existing tropical forests; land rehabilitation, reforestation, and watershed management; and sustained and increased productivity on agricultural land through agroforestry.

Protection of Biological Diversity and Tropical Forests

At the heart of the concern for biological diversity is the knowledge that valuable, unique forms of life are being lost all over the world. Loss of a species means the loss of genetic material that may have had great value to humans in improving crops, providing resistance to disease, or offering a source of pharmaceuticals or industrial products and processes. In addition, a lost species may have had great cultural significance or played an important role in an ecological system.

Ecosystems as well as species can become threatened, endangered, and extinct. A healthy ecosystem is essential for the maintenance of all the species that live there. The products and services provided by a wetland, a forested hillside, an estuary, or a coral reef are invaluable to the agricultural, fishery, and forestry industries that depend on them.

In general there are four types of management for protection: i) managing entire ecosystems, ii) managing populations and species in natural or semi-natural habitats, iii) maintaining and propagating living organisms offsite in zoos and botanic gardens, and iv) storing seeds or other germplasm, usually with refrigeration or freezing.

The first approach, managing entire ecosystems, is the most effective way to preserve the maximum amount of biological diversity. Such an approach allows processes, such as natural selection and evolution, to continue. The survival and adaptation of many organisms depend on the complex interactions that take place only in undisturbed ecosystems.

Human management of selected species and their habitats is often used to prevent extinction of threatened species or to maximize and sustain the production of timber, game, fish, and recreational and scenic opportunities.

Offsite maintenance of living organisms in zoos and botanical gardens is another form of protection. These institutions can propagate threatened species, sometimes allowing their reintroduction into the wild, and maintain stocks of genetic material that are culturally significant or are used in research, breeding, and conservation education programs.

Storing seeds, embryos, or other germplasm is another way to preserve the genetic diversity of agricultural varieties and their important wild relatives. The shift in world agriculture toward high-yielding and genetically similar crop varieties requires maintaining a store of genetically diverse related varieties for use in breeding programs.

Using all four of these management approaches can contribute to the broad goal of preserving biological diversity.

Currently, very little is being done in most developing countries to protect biological diversity, even though these countries contain the vast majority of species and are experiencing some of the greatest pressures on their natural areas. Some endangered species are given legal protection from further harvesting, and limits are placed on the numbers of some animals that may be taken by hunters. Many countries have established national parks and protected areas in an attempt to protect remaining habitats for study and tourism, but few of these areas are properly managed for long-term conservation.

A.I.D.'s program for the protection of biological diversity and tropical forests includes helping countries establish and maintain parks and other protected areas, develop sound wildlife and plant conservation programs, and identify and assess species. Five types of activities are employed to achieve these program goals: policy dialogue and strategic planning, education/public awareness, institution strengthening and professional training, research and inventories, and specific site or resource management.

A.I.D.'s biological diversity program consists of 44 activities, all aimed at protection of species and habitat. A small percentage of A.I.D.'s forestry projects have forest protection as their primary focus, and a few project components provide strict protection for endangered species.

Indonesia contains 40% of Asia's tropical forests and is one of the most biologically diverse countries in the world. While the extent of Indonesian tropical forests are second in the world only to Brazil, this rich natural resource base is threatened by inappropriate agricultural and logging practices. Concern over the loss of species and habitats has led the World Wildlife Fund-US (WWF-US) to place Indonesia among its top priority countries for conservation action.

A.I.D. and the WWF-US have joined in a collaborative effort to strengthen local, nongovernmental conservation organizations. Initiated with a \$54,000 grant in 1987, this project will help indigenous NGOs, universities, and environmental study centers plan and implement a conservation strategy.

Like Indonesia, Madagascar is one of the most biologically diverse countries in the world and the most diverse in Africa. Madagascar may have more unique and endangered plant and animal species than any other nation. The island is thought to have originally been almost completely forested. Now, forest cover has been reduced to 20-30% of its original extent. With the population growing rapidly, pressures on remaining forests are increasing, and the integrity of protected areas is increasingly difficult to retain.

Working with the WWF-US, the Missouri Botanical Garden, and Yale University, A.I.D. has initiated a \$200,000 project to integrate conservation area management with the needs of local peoples. The Madagascar Wildlands and Human Needs Project is aimed at stopping agricultural encroachment in the Beza Mahafaly and the Andohaëla national reserves. The goal is to generate support from the local people for the protection of the reserves by improving their farming techniques and by linking their well-being to the success of the protected areas. Specific activities include a general inventory and vegetation map of southern Madagascar, conservation training for Malagasy nationals, and the improvement of agricultural and forestry extension services to local people living around the reserves.

In the western reaches of the Amazon Basin, A.I.D., the Institute for Economic Botany at the New York Botanical Garden, and various Ecuadoran universities and scientific organizations are conducting a botanical survey of eastern Ecuador. The goal is to assess the current and potential economic importance of local plants. Plants are being collected at sites representative of the different ecological zones and land-use patterns of the Amazon region of eastern Ecuador and then assessed for potential uses and possible roles in sustained management of the land. A database on forest tree species is also being prepared.

About \$150,000 in FY 1987 obligations went to the International Board for Plant Genetic Resources (IBPGR) to study wild relatives of economically important species.

Activities include mapping the distribution of wild mangifera (mango) and ipomea (sweet potato) and examining the patterns of genetic variation of other wild crop relatives over their geographic distributions. These activities are the first steps in generating data on diversity-rich areas that can be designated as in-situ genetic reserves. A.I.D. has already supported work at the IBPGR to protect teosinte (progenitors of maize) in Mexico, the citrus family in southeast Asia, and the black-eyed pea family in Africa.

As part of a large forestry project in the Yanachaga-Chemillen Park and San Matias Protection Zone in Peru, A.I.D. has supported studies of beneficial plant species and an inventory of tree species. By working with the Amuesha Indians, plants have been identified that are rich in seed oil and show a potential for medicines and crops.

To preserve this area, A.I.D. is supporting the work of the Nature Conservancy and the Fundacion Peruana para la Conservacion de la Naturaleza to turn the Yanachaga-Chemillen into a protected park. Proper park management will conserve biological diversity, maintain fragile ecosystems, and provide tourist revenue. Forestry guards will work to prevent illegal hunting, logging, or settlement. A visitors' center and educational nature trails will be established.

Coastal mangrove, seagrass, and coral reef ecosystems in tropical areas are as biologically diverse as humid tropical forests. They not only provide essential habitat and feeding grounds for commercial fish stocks but they also provide the natural resource base for burgeoning coastal tourist industries. In FY 1987, in cooperation with the University of Rhode Island, A.I.D. supported coastal resource management activities in Thailand, Ecuador, and Sri Lanka.

A.I.D. began work in 1987 on a coral reef protection strategy for Phuket Province, Thailand's premiere coastal area, as part of an overall coastal resources management effort in Thailand. The purpose of the strategy is to identify and implement measures for the protection and management of coral reefs and associated support systems so that these areas can be used on a sustainable basis. Key elements of the strategy include coordination with the Royal Forestry Department in revising the National Park Act to extend existing legal authority to include a coastal marine resources management component and coordination with the Departments of Forestry and Fisheries, the Tourism Authority, and the private sector to provide tourist information

services, management-oriented research, visitor-use control, protected area zoning, and cooperative enforcement.

Management for Sustained Use of Existing Tropical Forests

Improved management of natural tropical forests is essential to meet local people's needs while sustaining the forest resource base. That means using management techniques whenever possible for primary and secondary open and closed tropical forests, including naturally regenerated forest fallow and scrublands.

Managing a natural forest for sustainable use allows a regular yield of forest goods and services without radically altering the composition and structure of the natural forest. Extracted materials are generally replaced through natural regeneration under formal management plans. Sustained yield management helps reduce the rate of deforestation by decreasing the pressure to convert remaining forests to agriculture or pasture. It is far more cost effective to maintain a forest than to restore it after it has been degraded.

Natural forests supply a wide variety of goods and services in addition to their timber. They are the source of raw materials for the development of drugs and pesticides. They offer fuelwood, fruit, spices, tubers, fiber, rattan, bamboo, roofing material, edible and non-edible oils, resins, waxes, gums, latexes, tannins, dyes, and beneficial insects. They are the source of live animals used in medical research and numerous animal products such as meat and skins. They provide watershed protection and play a part in regulating local, regional, and global climates. Better management of these reserves has potential for increased rural incomes.

Frequently, the benefits of the full range of these goods and services are overlooked when the value of a forest is estimated. When only commercial timber is considered, a forest managed for sustained use may not appear as profitable as one that is harvested in a more traditional fashion or cleared for agriculture or fast-growing exotic tree plantations. However, when the additional goods and services are considered, managing for sustained use over the long term can be far more economical and profitable.

Only a very small part of all remaining productive tropical forests are now subject to any form of systematic

management. Even in the case of closed productive tropical forests, less than 5% are currently being managed at all.

An international task force convened by the UN Development Programme, the World Bank, and the World Resources Institute (WRI) cited several obstacles to sustained-use management, including the "low rate of return on investment; lack of technical knowledge; intense pressure on forests because of population growth, agricultural expansion, and poverty; lack of skilled personnel and materials needed to manage forests; and lack of political commitment." The UN Food and Agriculture Organization (FAO) has added several other reasons for the breakdown of such programs, such as encroachment by landless farmers, difficulties in enforcing plans and regulations, changes in land-use policy, and political realities.

A.I.D. supports a growing number of projects that have as their principal focus managing natural forest areas on a sustainable yield basis. The projects are largely located in Latin America.

In Peru, the Central Selva Resource Management Project is testing the theory that natural forests can be managed on a sustained-yield basis to provide long-term economic and social benefits to local people.

Originally planned as a large-scale colonization project, A.I.D. worked with the Peruvian government to reorient the project in favor of improved agricultural systems and natural forest management for the existing 10-15,000 inhabitants, including Amuesha Indians. The Amuesha will continue to hunt, fish, and forage in the protected forest, which serves as a buffer zone to the Yanachaga-Chemillen National Park. They have formed the Yanesha timber harvesting cooperative and carry out sustained-yield forestry activities based on natural regeneration. Community representatives train at the cooperative processing center and pilot forestry area and then return to teach the new techniques in their own communities.

Timber is being harvested in 30-year rotations from long, narrow strips, which are bordered by intact forest that is the source of seed for natural regeneration. Every sixth strip is left as a permanent reserve of primary forest. Two years of experience shows excellent regeneration of tree species, with an actual increase in the diversity of species, including many rare ones. The regenerated strips, with their

increased low vegetation, have the added benefit of providing improved habitat for wildlife. The project goal is to increase the incomes and involvement of the local inhabitants. Without this, the local people are not likely to continue the new practices and, without demonstrable results and widespread benefits, the government of Peru is not likely to be interested in replicating the program in other tropical forest areas. This innovative concept is now being considered for further testing in an A.I.D. project in Thailand and a multilateral bank project in Bolivia.

Planned as a ten-year project, the \$35.7 million Natural Resource Management Project in Panama also has sustained-use natural forest management as a major goal. Panama is facing serious pressure on its natural forest resources. By 1985, for example, 60% of its original forests had been converted to other uses. If this project continues (it has currently been suspended), the Rio La Villa, Rio Caldera, and Panama Canal watersheds would be placed under soil conservation plans, and the watersheds' forest areas that are classified as productive would be placed under sustained-yield management. Field units of the National Institute of Renewable Natural Resources (INRENARE) would be formed to place three public forests, El Caglon, Palo Seco, and Mangrove (totaling 636,000 hectares) under sustained-yield management. It is projected that these three forest areas would be able to supply 55% of the national demand for timber in 30 years. The project would provide a forest management advisor to work with the field units for three years to design and implement forest inventories and management plans.

As planned, this project would increase the productivity of timber resources and increase economic returns by using wood and trees not now considered commercially valuable. The increased revenues would be used to finance INRENARE's forest and natural resource management activities. The field operations of INRENARE would be upgraded and provided with technical assistance to design and test forestry practices that enhance the regeneration of valuable tree species. Training would also be provided to hundreds of INRENARE and private sector personnel and to 6,000 community members. Included in the training would be M.S. degrees for 10 INRENARE staff.

INRENARE would work with local people and private voluntary conservation organizations to develop protection strategies and environmental education programs for national parks and wildlife reserves, focusing on Soberania,

Portobelo, and Volcan national parks, the most visited. INRENARE would also draft a National Parks and Equivalent Reserves Law to protect these forests from conversion to agriculture or grazing.

The new seven-year Honduras Forestry Development Project, at a total cost of \$20 million, is due to start in FY 1988. The project will improve the management and sustainable productivity of commercial pine forests. It will also upgrade the efficiency of the processing and marketing of wood products from the La Union Forest Management Area in Olancho, which will serve as a model for other areas. The project will strengthen the ability of the Honduran Forestry Development Corporation (COHDEFOR), whose traditional role has been in lumber production and marketing, to manage forests as renewable resources.

The project will provide technical assistance and training to the private sector to carry out logging, milling, and marketing of lumber in a more efficient and environmentally sound manner. Local communities will participate in forest harvesting, and small scale forestry industries will receive employment and income benefits. A grant to the Honduran Ecological Association will allow it to contribute to environmental education, research, and inventory work that will lead to better public and institutional awareness and cooperation in the protection of fragile areas. Managing the forest for sustained yield will protect natural areas which, following the current trend of land use in the area, would most likely be converted to other uses.

Land Rehabilitation Through Reforestation and Watershed Management

Forests are important not only for the products they supply, such as fuel, fodder, timber, and food, but also for the valuable cover they provide for the soil. Tree roots give structural support, thus stabilizing often fragile soils, as well as access to nutrients and water from deep within the ground. Their leaves act as buffers against rain and provide valuable organic matter and nutrients to the soil. It is estimated that tropical forests protect watersheds and regulate water flow for farmers who grow food for over one billion people.

Deforestation on slopes and watersheds causes soil erosion, which leads to clogged waterways, reservoirs, and irrigation channels; flooding; disrupted hydroelectric projects; and water scarcities. Half of the world's population lives in mountains or adjacent lowlands that are affected by tree cover on mountain watersheds.

Without vegetative cover, many tropical soils rapidly lose their productivity. Degraded lands become deficient in nutrients and organic matter and are easily eroded. They lose their ability to hold water, becoming hard and compacted. The initial result is declining crop yields. The ultimate result is often desertification and spreading wastelands.

The primary factor in the clearing of tropical forests in all regions is the expansion of agricultural crops and livestock grazing onto forest lands. Agricultural expansion, in all its forms, is responsible for approximately 80% of all tropical deforestation, and shifting (slash-and-burn) cultivation is the largest single cause. In its 1982 report Tropical Forest Resources, the FAO estimated that shifting cultivation was responsible for 45% of all tropical deforestation, ranging from 35% of closed forest clearing in Latin America to 49% in Asia to more than 70% in Africa.

Reforestation is one way to improve the productivity of degraded lands and provide for human needs. Reforestation is the planting of seeds, plants, or plant parts to establish trees. This may include the establishment of plantations for industrial or non-industrial use or the planting of multipurpose trees as windbreaks, for erosion control, and for fuelwood, fodder, and building materials.

The basic mechanical steps required in a successful artificial reforestation project include land preparation (loosening the soil, adding nutrients through fertilizers or organic matter, clearing competing weedy vegetation), species selection (generally fast-growing, multipurpose trees prove most successful), and seedling or cutting production and planting. Labor is often provided by local people who either contribute their labor or are paid for their work, sometimes through food aid, and who will receive benefits from the trees (food, fuel, timber, fiber, fodder).

About one-fourth of A.I.D.'s current portfolio of forestry projects have land rehabilitation, reforestation, and watershed management as their primary focus. A.I.D. has

land rehabilitation projects in 28 countries. Most deal with severely degraded lands -- hillsides in Asia and Latin America, desertified lands in Africa. Many other forestry projects have rehabilitation as a secondary goal.

In 1980 A.I.D. began a seven-year, \$4.2 million Forestry Land Use Planning (FLUP) Project in Niger. It exemplifies the multifaceted approach used in A.I.D.'s reforestation, rehabilitation, and watershed management projects. At the national level, the project has produced a well-organized and functional planning unit within Niger's Forestry Service, which will integrate the government of Niger's natural resource planning and management with its other development activities. On the local level, test sites were chosen to demonstrate sound rehabilitation and resource management practices. Four model sites were located on severely degraded land, land long abused from overgrazing, over-cutting, and drought. Between 1950 and 1979, the sites had lost 40-60% of their cover. By 1983, most of the top-soil had washed away.

The main goal at the test sites was to stop degradation and restore the forest to a balanced, stable condition so that vegetative resources used each year did not exceed annual growth. It also sought to provide a continued source of forest products for local users and markets. The project developed small-scale, low-cost rehabilitation techniques that provided immediate results. Twigs and branches, previously considered waste, were used as mulch to protect and improve the soil. Small, valuable crops and pasture plants were grown on the newly improved land during the years before the trees grew large enough to protect it. During this time, income was provided to local people. Even so, costs were much lower and rates of return six to eight times higher than for traditional forest plantations attempted in similar environments.

At the project's Guesselbodi Forest, 25 kilometers from the capital city of Niamey, 70,000 trees were planted annually, with local laborers employed in the forests and nurseries. These local people were involved in the project all along the way. Their suggestions were incorporated in the planning and implementation processes. A farmers' cooperative was established, which teaches rehabilitation methods and oversees the day-to-day management of the forest. According to John Heermans, the project forester, the initiative was carried out "with respect to local attitudes and traditions while adhering to such sound principles as

sustained yield, maintenance of biological diversity, and soil conservation."

In the final project evaluation, the model sites were determined a success. They demonstrated that natural forest management is both economically and ecologically viable. Local users were provided with forest products, the land was restored, and wildlife was returning to the protected areas. In economic terms, the Guesselbodi Forest yielded a positive return on investment because income was received from both fuelwood harvesting and production of grass for livestock. Furthermore, natural forest management practices developed in Niger can be extended to other Sahelian countries with similar environments.

The Sudan Eastern Refugee Reforestation Project provides another example of impact being felt at both local and national levels. Located near refugee villages in the Kassala province in Eastern Sudan, the project sought to decrease soil erosion and reforest approximately 4,000 hectares of land while providing fuelwood and employment for refugees. Nurseries were established that have produced over 2 million seedlings. In addition, the project strengthened the government of Sudan's Forestry Department by increasing its staff and extension activities.

The Senegal Reforestation and Soil Conservation Project, a nationwide program, is aimed at motivating large-scale participation in tree planting. According to the FAO, Senegal is at high risk of desertification. Reforestation is an important step in stemming this trend. Technical, marketing, and motivational information on tree planting will be provided through a media campaign, which will include radio and TV programs, newspaper articles, and audiovisual kits for extensionists. Forest Service personnel and extension agents will be trained in forestry techniques and in ways to motivate farmers, community leaders, and the private sector to plant trees.

In Haiti, degradation in watershed areas is a major problem. In the Targeted Watershed Management Project, seven watersheds south of the Pic Macaya range in southwest Haiti were selected as models for national hillside management. In addition, A.I.D. contracted with the University of Florida to manage, in cooperation with the government of Haiti, the Parc National de la Viste and the Parc National Pic Macay, both 2,000 hectares in size and the home of numerous endemic species.

Research sites were selected to test techniques for improving crop yields and farm income while preventing erosion. The project, if it continues (it was suspended with other aid to Haiti in November 1987), would involve 20,000 peasant farmers in similar experiments on their own farms. The activities would be carried out by local NGOs under the direction of the US-based Associates in Rural Development. The project would also provide technical assistance and training to Haiti's Secretariat for Watershed Management.

A significant amount of reforestation and watershed management work takes place under food-aid programs. The largest are the PL-480 program and the UN World Food Programme, of which the United States is a major contributor. Food aid is also administered under Section 416 of the Agriculture Act of 1949.

A substantial portion of all tree planting taking place under US foreign assistance is being accomplished under PL-480 programs. In the five years ending in 1985, 150,000 hectares were targeted for forestry activity. Food-aid supports seedling production, soil conservation, and tree planting. It pays the salaries of extension workers and supports local people during the fallow period of tree establishment. Food-aid was used to influence forestry policy in Tunisia and in Morocco, where there is now a 6% tax on imported forestry products that is used to support reforestation efforts. It has been estimated that, worldwide, over 100 forestry projects were supported by US food aid during FY 1987.

Successful rehabilitation, reforestation, and watershed management projects generally have certain elements in common. They employ low-cost conservation techniques that do not require large amounts of capital for start-up and maintenance and are easily transferred. They involve local people and provide them with short- and long-term benefits.

Intensive Management for Improved Yields Through Agroforestry

Growing trees--the right kinds in the right places at the right times--can be an effective approach to reducing pressure on tropical forests, maintaining watersheds, and providing opportunities for employment and income growth for farmers, particularly those living on lands that are only marginally productive or whose productivity has already

deteriorated. Agroforestry is defined generally as growing a mixture of agricultural and tree crops on the same land, simultaneously or sequentially. It is a land-use system that draws upon traditional sustainable agriculture, forestry, and livestock systems combined with modern technology.

Agroforestry has grown in recognition and importance because trees grown outside forests have become increasingly recognized as a significant renewable resource and because trees and other woody perennials play such a key role in enhancing and sustaining agricultural crop and livestock production, particularly of poor farmers.

The importance of tree growing outside the forest is evident in countries like Rwanda, where approximately 20% of farmland is maintained by farmers as woodlots and wooded pasture. These 200,000 hectares exceed the combined area of the country's remaining natural forests and state and communal tree plantations.

There are many different agroforestry systems, but they all have two common properties. They improve the productivity of the soil while contributing to agricultural production by supplying tree-derived products and services. Agroforestry systems can be further characterized: they make use of multipurpose trees and other woody perennials; they are managed for short-term as well as long-term benefits; their production is of direct value to the farmer; they are usually carried out on a small scale with the work done by individual farmers; and they may include social forestry and community forestry activities.

Introducing an agroforestry system offers numerous benefits. Tree roots can bind the soil, increase soil porosity, and increase water infiltration. Soils subject to wind erosion can be protected by tree windbreaks. Soil nutrients, easily lost to leaching, runoff, and regular harvesting of crops, can be recycled. Leguminous trees take nitrogen from the air, which is then fixed in the soil, retrieved through the roots, and redeposited on the upper soil layer as leaf litter and twigs, providing a mulch that stabilizes and increases crop yields. Leaves, seeds, pods, and fruit provide food for people and fodder for livestock. Products from agroforestry can be used on the farm or sold. Increasing the diversity of plants used reduces the risk of a total crop failure, which adds a measure of security for resource-poor farmers.

Four agroforestry systems currently being used in A.I.D. projects include:*

- o intercropping -- the growing of food crops such as millet, sorghum, corn, and groundnuts under naturally occurring stands of trees. Projects and experiments are being carried out in Mali, Burkina Faso, Chad, Senegal, Niger, and northern parts of Nigeria.

"During the dry season, livestock are sheltered under the shade of the *Acacia albida* trees, and feed on their leaves and pods. The topsoils under the tree canopy are enriched by organic matter from the leaves, animal droppings and nitrogen fixed by the tree roots. As the rainy season begins, the trees stop growing and are practically dormant throughout the period when crops thrive on the enriched soils under their leafless canopy. In short, the trees provide the farmer with a reliable and cheap source of fertilizer and fodder as well as useful by-products."

- o alley cropping -- the growing of a crop such as maize between hedgerows of trees. Experiments are being conducted at the International Livestock Center for Africa (ILCA) in Ethiopia and the International Institute for Tropical Agriculture (IITA) in Nigeria.

"The alley cropping technique involves growing annual crops in spaces (4-6 meter wide "alleys") between rows of leguminous trees or shrubs maintained as hedges. The hedges are heavily pruned throughout the crop season to prevent them from shading the crops. The prunings and crop residues are used as mulch to enrich and conserve moisture on soil in the cultivated alleys. Soil nutrients and nitrogen fixed by the tree roots similarly enrich the soil in the alleys. Therefore, the technique allows for continuous cultivation of food crops by restoring soil productivity throughout the cropping cycle. In other words, a fallow period is not required."

- o contour hedgerow farming -- alley cropping adapted to hillside farming. *Leucaena*, *gliricidia*, and other tree species are used to grow hedgerows on the contour to

* All quotes are from the forthcoming A.I.D. special evaluation, Agroforestry Projects for Small Farmers: A Project Managers' Reference.

conserve topsoils and support the cultivation of corn or other crops. A.I.D. supports projects using this technique in the Philippines and Indonesia.

"Seeds of fast-growing, deep-rooted leguminous trees are planted densely in double rows along contour lines (i.e., lines connecting points at the same elevation on the hill slope). As the seedlings mature, a continuous hedge comprising hundreds of small, tough trunks is formed. The hedge acts as a barrier to anchor the soil, and to divert and break the speed of water flowing down the slope. Where the soils are deep, canals are constructed on contours alongside the hedgerows to hold the water, allowing it to percolate into the soil. By keeping the water away from cultivated areas, the canals also minimize water damage to crops. Grasses and other groundcover perennials are cultivated at the base of the hedges to further absorb water and reinforce the soil-anchoring effect of the hedges."

o windbreaks in arid and semi-arid areas--the growing of trees in rows perpendicular to prevailing winds. In the Majjia Valley Windbreak Project in Niger, the neem tree, *Azadiractha indica*, has been planted to protect millet and sorghum growing under rainfed conditions.

"Crops benefit directly from being protected against the scouring and drying effect of wind on the plants, and against soil loss. Apart from being anchored securely by tree roots, soils under the tree canopy are also enriched by micro-organic life that thrive under its shade. Nutrients and organic matter are added to soils as leaf litter from the trees decays. Where leguminous species are used, the nitrogen fixed by their roots provides an additional benefit to the soil."

A.I.D.'s agroforestry program is aimed at directly supporting rural development in three ways: by targeting assistance to farmers who have very few resources to invest in their land; by sustaining agricultural production and rehabilitating cultivated lands and newly cleared tropical forest lands; and by contributing directly to the rural economy through increased production of fuelwood, animal fodder, timber, poles, and raw materials for industry.

In FY 1987 A.I.D. supported more than 60 projects that were directly or indirectly involved in transferring agroforestry technology and information to developing

countries through training, extension services, research, public education and policy awareness, and on-site management.

One of those projects was the Agroforestry Outreach Project (AOP) in Haiti, begun in 1981. As its name implies, the key purpose of the project is to reach out and motivate Haitian farmers to plant and maintain trees on their farms. Other components include the development of nurseries, demonstration plots, training, extension services, and research. The secondary goal is to reduce pressure on remaining Haitian forests and to increase the long-term productivity of the land.

The Agroforestry Outreach Project is currently the largest of A.I.D.'s agroforestry projects in Latin America. The second phase of the eight-year project is funded at \$11.5 million; \$5.4 million in funds were obligated in FY 1987. The project was extended in FY 1985 and again in FY 1987 based in part on favorable evaluations. The AOP has effectively incorporated financial support from the Canadian, Swiss, and Belgian governments.

Most of the work on the AOP has been carried out by private voluntary organizations (PVOs). A.I.D. provided a grant to the Pan American Development Foundation (PADF) to help Haitian farmers by creating a local mechanism for developing tree nurseries, growing and distributing seedlings, and training extension agents to motivate and guide the farmers in planting and caring for the trees. PADF has contracted with up to 60 local PVO and missionary groups to do these jobs each planting season.

By the end of 1986, PADF, through local promoters or "animateurs," had helped 85,000 Haitian farmers plant 20 million trees. Survival rates were less than the project design called for, but innovations in packaging and planting large quantities of tree seedlings reduced the cost per surviving tree to one-fifth the original estimate.

A.I.D. also contracted with CARE to work in the arid northwest, the country's charcoal-producing region. CARE has been directly responsible for training local project staff and village extension workers, who in turn train participating farmers. To date, they have helped more than 4,000 farm families produce 5.2 million seedlings. CARE supported the development of 27 local nurseries.

The most versatile and useful of the tree species introduced in the project was Leucaena leucocephala. This rapidly growing tree has been used to plant 35 miles of vegetative contour hedgerows, which increased crop yields, reduced erosion, and provided fodder for goats, cattle, and pigs. The trees are also cut for poles and lumber and used for charcoal production. With the successful introduction of leucaena, farmers are now requesting higher value species such as mahoganies, shene (local oak), myrtle, and fruit trees.

Factors influential in the success of this project include:

- o markets -- There are local and regional markets for charcoal, fuelwood, and fruits. Haitians are very poor and still depend on fuelwood for about three-fourths of all residential energy use.
- o incentives -- Farmers were initially paid to participate in the project. Both PADF and CARE phased out farmer incentive payments for planting because farmers wanted to participate. In fact, interest in tree planting increased so fast that PVOs were unable to meet the demand.
- o institutional arrangements -- Farmers worked out legal arrangements with landowners to ensure that they have the right to harvest and use the trees they planted and cared for.
- o extension services -- PVOs provided a low-cost, effective way to reach farmers with seedlings and advice on planting and maintenance.

In Africa, a number of A.I.D. missions have reoriented agricultural and reforestation projects to support agroforestry activities. In Kenya, a country in which more than 75% of the population depend on biomass as the major source of energy, fuelwood production can be as important to the rural economy as crop production. Increasing the production of fuelwood without further land degradation is a national priority, but getting information to farmers on ways to grow better trees and increase production has been difficult.

A.I.D. funds have helped make it advantageous for government agencies in Kenya to work together to help farmers

grow trees for fuelwood. The \$2.1 million agroforestry component of Kenya's Renewable Energy Development Project, which was completed at the end of FY 1986, enhanced cooperation between the Ministry of Energy and the Ministry of Agriculture. Project funds have gone to the Ministry of Energy staff to formulate energy policy, oversee project implementation, provide technical assistance in renewable energy, and develop energy conservation measures in all sectors of the economy. Some of the funds and technical assistance have gone to the Ministry of Agriculture to provide training for its extension workers, who have assisted in establishing nurseries and on-the-farm agroforestry demonstration plots.

As in the Haitian Agroforestry Outreach Project, most of the local extension work was carried out by local non-governmental organizations. The project, supported by the work of Peace Corps volunteers, established 67 community-managed nurseries and many smaller school nurseries, which in turn served the needs of local farmers. More than 120 different tree species have become available for use, and the production capacity of local nurseries in 1985 reached 7 million seedlings per annum.

Other examples of agroforestry projects in Africa and Asia include:

- o Malawi: Agricultural Research and Extension Project. This project, implemented in cooperation with the World Bank, will include \$700,000 for agroforestry trials and demonstrations. The principal aim is to strengthen domestic government institutions to support small landholders, with particular attention to the needs of women farmers. Staff from the Extension Aids Branch and the Extension Planning Unit will be trained to evaluate extension requirements in their districts. The World Bank component includes developing radio programs and other mass media campaigns to help farmers adopt agroforestry techniques.

- o Indonesia: Upland Agriculture and Conservation Project. Funded at \$18.9 million, this seven-year project started in 1984 to improve farming and soil conservation techniques in upland areas of Java. Research facilities are being established by the Ministry of Agriculture in the Jratunseluna Watershed of Central Java and the Branteas Watershed of East Java. Research results from crop and livestock systems,

silvopasture, and soil conservation demonstrations will be tested on 72 demonstration farms through the Sustainable Upland Farming Systems Pilot Project. In addition to training at the local and regional levels, specific on-the-ground targets include producing and distributing food crop seeds, establishing nurseries to produce legume and grasses for stabilizing terraces and supporting livestock, and planting 23,000 hectares of unproductive or high-erosion-risk lands.

o India: National Social Forestry Support Project. This \$330 million project covers four states, with a population of more than 80 million and a broad range of natural resource conditions and problems. The project is jointly sponsored by the World Bank (International Development Agency), the government of India, and A.I.D. The Agency has committed \$77 million in loan funds for tree production and \$3 million in grant funds for building technical capacity. The primary goals are to generate sustainable forestry production and increase rural incomes. Recent evaluations indicate high levels of achievement and, with respect to training, results far in excess of established goals.

Chapter 3

PARTNERSHIPS FOR IMPROVED EFFECTIVENESS

Over the years, A.I.D. has found it can often provide better services at lower cost by working in partnership with other organizations. The Agency calls upon the knowledge and experience of other federal agencies; the state and private university systems; research institutions; the business community; and nonprofit private voluntary and environmental organizations. These partners frequently bring additional funding to the task as well. And when the bilateral and multilateral donors work out common advice and joint projects, the results and benefits are multiplied.

To carry out its projects in the field, A.I.D. works with a number of US and international nongovernmental organizations (NGOs) and private voluntary organizations (PVOs), other agencies of the US government, universities and research institutes, and other institutions. In FY 1987, A.I.D. worked in partnership with these organizations in 97 of 146 forestry projects (66%) and 41 of 44 biological diversity activities (93%).

PVOs and NGOs

A.I.D. uses both host-country, US, and international PVOs and NGOs to increase the impact of projects and to support new activities. Congress recognized the importance of these organizations in Sections 118(d) and 119(f) of the FAA, which mandate that, whenever feasible, the objectives of the legislation are to be accomplished "through projects managed by private and voluntary organizations or international, regional, or national nongovernmental organizations which are active in the region or country where the project is located." In many cases, A.I.D. leverages

more money for its activities by requiring that recipient organizations match A.I.D. grants with their own funds.

Host-country NGOs and PVOs are particularly important because they can be a major force in building their nations' environmental agenda, in promoting public awareness and education, and in working with local people. These indigenous NGOs and PVOs carry out education and extension, research, protection, and site-management activities. They are committed and experienced, and they are able to work on the ground effectively and at low cost. A.I.D. provides assistance to them through grants, contracts, and technical support.

In some cases, A.I.D. provides funding to an intermediary organization, generally international, which in turn supports organizations and activities at national or local levels. CARE implements a number of A.I.D.'s projects, including the Sudan Eastern Refugee Reforestation Project. Grants to the World Wildlife Fund-US (WWF-US) are helping establish nature reserves and develop environmental education and nature tourism as well as conduct studies and inventories of rare and endangered animals. Grants to the US-based the Nature Conservancy (TNC) have helped support Conservation Data Centers in Bolivia, Costa Rica, Panama, and Peru, which provide information on biological diversity used in conservation and development planning. TNC also received a \$200,000 matching grant to support the establishment and management of the Yanachaga-Chemillen National Park in Peru. A cooperative agreement with the International Institute for Environment and Development (IIED) provides support for indigenous NGOs active in sustainable development projects around the world.

A.I.D.'s Latin American Bureau has made a substantial effort to encourage the development of NGOs and work directly with them to carry out natural resource programs. Ecuador's Fundacion Natura, partly through A.I.D. support, has grown into one of the most influential environmental NGOs in Latin America since its founding 1978. Through a highly successful national environmental education strategy, Fundacion Natura has been able to gain support for conservation and sustainable development issues among groups ranging from schoolchildren to government leaders. With an A.I.D.-supported education program, Fundacion Natura's multimedia public education campaign has reached audiences through radio, television, newsletters, booklets, posters, and an elementary school environmental science curriculum.

The Asociacion Hondurena de Ecologia (AHE) is an example of how initial A.I.D. support can result in institutional strengthening. Over the past three years, AHE's programs in public education, research, and protected areas management have grown as chapter organizations have started up all over the country.

A grant made to Fundacion PA.NA.MA. (through WWF-US) has helped strengthen its administrative and managerial capacity. Fundacion PA.NA.MA., a consortium of 30 environmental organizations in Panama, provides a channel for increased citizen involvement in the management and protection of natural resources and the environment. Field projects are conducted by member groups throughout the country in support of national parks and protected areas. Projects include park interpretation, environmental education, infrastructure development, public awareness, and tourism promotion. Fundacion PA.NA.MA. also conducts research on fauna, flora, agroforestry, and mariculture. Recently it was invited to participate in the government of Panama's National Plan for the Protection of Wildland and Natural Renewable Resources.

In southeast Asia, A.I.D. is supporting the work of the Haribon Foundation, a leading conservation group in the Philippines, to develop a comprehensive overview of the country's biological resources and threats to them. The organization is bringing together natural resource specialists to develop a conservation action plan, based on the overview, which will guide government decisions and international conservation and development investments.

A.I.D. is funding the activities of several NGOs in Thailand that encourage the wise and sustainable management of natural resources. The Rural Friends Association in Northeast Thailand seeks to improve environmental quality and the standard of living for landless and small farmers whose current activities contribute to deforestation. Similarly, the Wildlife Fund of Thailand works to demonstrate to forest dwellers employment options that are non-destructive to their forest resources.

With A.I.D. funding, CARE/Thailand is producing a children's magazine that will address the related problems of environmental destruction and children's health and nutrition in Thailand's poorest regions, the north and the northeast. It will seek to improve children's understanding of forest, watershed, and wildlife conservation practices as well as nutrition, hygiene, and disease. Modeled on a successful

magazine produced by CARE/Kenya, the cartoon-style magazine will reach approximately 900,000 fifth and sixth graders.

The Thai Environmental and Community Development Association (TECDA) is educating children about environmental problems and ways to solve them by fostering a conservation ethic and a sense of responsibility for the environment. TECDA is producing one-minute television spots and 30-minute videos for young viewers with messages about forestry and soil conservation, water pollution, and health.

Food Aid and Forestry

In many countries, A.I.D.'s forestry objectives are getting a big boost from food aid. In FY 1987, 38 food-aid projects in 23 countries had forestry and closely related natural resource components funded at \$25.9 million. (See Table 3-1.)

The work is being done under Public Law 480, the Agricultural Trade, Development and Assistance Act of 1954. The Act authorizes three programs through which the United States provides food assistance. Titles I and III authorize concessional sales of food commodities with low interest rates and long repayment terms. Under Title III, the loan may be forgiven if the recipient government uses the local currency generated by the sale of the commodities for agreed-upon projects, such as forestry, agricultural development, health, or population planning.

Title II authorizes food commodity donations to meet urgent relief needs, combat malnutrition, and promote economic and community development. Donations are made through PVOs (such as CARE, Adventist Development and Relief Agency, and Catholic Relief Services), the UN World Food Programme, or direct government-to-government grants. Title II commodities are often used in food-for-work projects, which use food as a wage or incentive for work in reforestation, land conservation, and other similar activities.

A.I.D. plays an important role in administering US food-aid programs in close cooperation with other US government agencies. Representatives from the US Department of State, the US Department of Agriculture, the Office of Management and Budget, the Treasury Department, and A.I.D. constitute the Development Coordinating Committee, which establishes

Table 3-1

TROPICAL FORESTRY ACTIVITIES SUPPORTED BY FOOD-AID FUNDS
(PL-480) BY REGION, FY 1987

Region	Obligations (in \$1000)		Totals
	Title I/III	Title II	
Africa	8,897 (4)	6,333 (16)	\$15,230 (20)
Asia/Near East	636 (2)	4,608* (3)	\$5,244 (5)*
Latin America/ Caribbean	5,044 (7)	399 (6)	\$5,443 (13)
Totals	\$14,577 (13)	\$11,340 (25)	\$25,917 (38)

Source: Forestry Project Database, Forestry Support Program, IDRA Inc.

Note: Freight costs not included.

* Does not include eight PL-480-funded research grants in forestry in India and Pakistan, with a total of \$9.5 million in LOP obligations.

guidelines for food-aid agreements. A.I.D.'s role is to negotiate the terms of the sale, in-country uses for the local currency generated by the sale, and the self-help activities the recipient government will do to fulfill the terms of the sales agreement.

Food-aid-supported forestry activities are especially important in Africa, where the value of food aid for forestry in FY 1987 was greater than the value of directly funded A.I.D. bilateral forestry development projects.

To improve the integration of food aid into forestry and natural resource programs, joint A.I.D./Peace Corps programming was begun in 1985. This effort led to an A.I.D./Peace Corps workshop in Mombasa, Kenya, in May 1987. The workshop brought together participants from A.I.D., the Peace Corps, and East African PVOs, NGOs, and host-country government agencies. Plans for innovative forestry and food-aid activities were made, working relationships forged, and the capacity to design and implement projects improved. Significant follow-on has resulted from the Mombasa workshop. A Latin America Food Aid Workshop was held in Guatemala in February 1988 and plans for similar workshops in Francophone Africa and in Asia and the Near East are planned for later in 1988 and 1989.

In northern Kenya, Food for the Hungry International is implementing a new reforestation and agroforestry project based on the principles of the Mombasa workshop. The project includes creation of nurseries with an annual production of approximately 400,000 seedlings, fruit tree production and planting, and other agroforestry activities, including alley cropping and water catchment construction. Food-aid funds and commodity distributions will provide about 70% of the total project costs. The Peace Corps is assisting in the introduction of improved fuel-efficient cook stoves.

In Guatemala, the INAFOR/CARE/Peace Corps Soil Conservation and Reforestation Project, after eleven years of activity, is now working successfully with benefits for thousands of farmers. The program supports the efforts of 193 agroforestry committees through the work of 80 local extensionist-promoters and 28 US Peace Corps volunteers. The project produces 3.5 million trees each year.

The INAFOR/CARE/Peace Corps project uses Food-for-Work, supplied by A.I.D., as an incentive to convince subsistence farmers to attempt soil conservation and reforestation

practices on their individual holdings and on communal land they share with other families. (Food-for-Work commodities used in 1987 totaled 1,659,000 pounds.) Financial support also comes from A.I.D. through a partnership grant with CARE.

In India, Catholic Relief Services, using PL-480 Title II commodities, subsidizes the labor of poor villagers who plant fast-growing tree species such as mesquite on public wasteland and deforested lands. About 700 hectares is planted annually under this project.

In addition, the World Food Programme in India, using, among other sources, PL-480 commodities, carried out about \$30 million of forestry activities in 1987. Overall, the United States provides, under PL-480 and other food-aid authorizations, about 40% of the commodities used by the World Food Programme worldwide for forestry and natural resources development.

Other US Government Agencies

Many US agencies are partners with A.I.D. in development efforts. On biological diversity and tropical forestry projects, A.I.D. works with the Forest Service, the Fish and Wildlife Service, the National Park Service, the Peace Corps, and the Smithsonian Institution. The need for such cooperation is noted in Section 118 and mandated in Section 119(g)(7), which states that A.I.D. "shall cooperate with and support the relevant efforts of other agencies of the US government."

The Forest Service

A.I.D.'s principal partners in carrying out its forestry program within the federal government are the USDA's Office of International Cooperation and Development and the Forest Service. In 1980, A.I.D. created the Forest Resources Management Project with two components: the Forestry Support Program (FSP) and the joint A.I.D./Peace Corps initiative.

The FSP, with a staff of 12 full-time forestry advisors, provides technical consultation to A.I.D. missions and bureaus; technical support to research, forestry training, and forestry program studies; and technical reference services. It supports forestry-agriculture initiatives, forestry-private enterprise initiatives, and forestry-food-

aid project activities. It refers forestry and natural resource expert consultants from a roster of 2,500, which it developed and keeps current, and maintains a database of A.I.D.'s forestry activities. It also provides technical backstopping to the Peace Corps' forestry and natural resource management program worldwide.

During FY 1987, the Forestry Support Program had a number of major accomplishments:

1. The FSP organized a major conference on tropical forest management through the Forest Service's Institute of Tropical Forestry in Puerto Rico. The conference, held in late 1986, brought together 180 experts and practitioners from 26 countries to examine and discuss tropical forest management. The proceedings of the conference were published during FY 1987 and distributed widely to A.I.D. missions, developing country scientists and officials, and representatives of international organizations under the title Management of the Forests of Tropical America: Prospects and Technologies.
2. The agroforestry initiative of the FSP, in its first full year of operation, completed work on two important documents: Systemas Agroforestales: Principios y Aplicaciones en los Tropicos, a Spanish-language agroforestry training manual that was distributed to A.I.D. missions in Spanish-speaking countries and agriculture/forestry organizations and libraries throughout Latin America, and Buffer Zone Agroforestry in Tropical Forest Regions, which will help managers use agroforestry techniques to design buffer zone projects to meet the economic needs of people who live adjacent to protected areas.
3. The private enterprise initiative, begun in 1984, continues its support of the INFORDE project in Ecuador, which seeks to promote wood and wood products in local and export economies while maintaining and enhancing the forest resource base.

In 1987, INFORDE sponsored a furniture export program for local industries, set up the Center for Technical Support to the Wood Products and Furniture Industry, completed a training course, and distributed a major report entitled Economic Analysis of Investment in Forest Plantation in Ecuador. Through the initiative, the FSP has also begun to support applied research to identify economic opportunities in nature tourism that will stimulate tropical forest conservation and protection.

4. The FSP provided technical support for food-aid-supported forestry activities, increased cooperation between A.I.D. and the UN World Food Programme, and worked in cooperation with the Peace Corps to increase the effectiveness of Peace Corps participation in PL-480 food-aid projects. With A.I.D. support, the FSP worked with the Peace Corps to organize the successful Food Aid and Forestry Workshop in Mombasa, Kenya, in June 1987.

The Peace Corps

Since 1981 A.I.D. and the Peace Corps have worked in a partnership in which both agencies share resources in an expanded effort to assist less developed countries. A carefully worked out forestry agenda includes programming assistance, pre-service and in-service training of volunteers and their counterparts, material support for Peace Corps projects, and the strengthening of Peace Corps collaborative programming of volunteers with PVOs/NGOs in association with both A.I.D. bilateral projects and PL-480 program resources.

In FY 1987, approximately \$525,000 of A.I.D. forestry money was spent to train and place in the field 100 new volunteers and to provide in-service technical training to 127 PCVs and 164 host-country counterparts. Agroforestry and PL-480 programming workshops were held to improve technical cooperation and communication among A.I.D., the Peace Corps, PVOs, and NGOs. New joint projects were started in Kenya, Ghana, Burundi, Sierra Leone, and Botswana, and ten other countries received material support for existing forestry projects.

The \$150,000 of biological diversity earmarked funds invested by A.I.D. in the Peace Corps in FY 1987 has paid for many small projects that are expected to have a multiplier effect. In Guatemala, Peace Corps volunteers and Guatemalan officials attended a workshop at which they helped identify priority conservation issues in the country and then defined activities and identified organizations and other resources that could be used to address the problems. In Morocco, A.I.D. provided training and programming assistance to PCVs and their Moroccan counterparts to establish endangered species sites, educate the public about disappearing species, and develop curriculum and faculty at the forestry school. In Paraguay, A.I.D. funds were used by the Peace Corps to develop techniques for conserving and managing the endangered and commercially important Amburana caerensis tree. In Sierra

Leone, through the Tiwai Island/Gola Forest Conservation Project, Peace Corps volunteers will conduct a land-use survey and formulate a management plan for one of the last remaining habitats of the pygmy hippopotamus and other threatened animal and plant species of the upper Guinea region.

An A.I.D.-funded workshop will be held in June 1988 in Washington to develop an environmental education module for the pre-service training given to all incoming Peace Corps volunteers.

In addition to A.I.D.-supported projects, the Peace Corps expanded its FY 1987 biological diversity efforts by 10% over FY 1986. Approximately 88 person-years (\$2.2 million) of Peace Corps volunteer effort was directed to supporting protected area management, conducting species inventories, improving seed collection and storage, and supporting anti-poaching activities.

The Fish and Wildlife Service

A.I.D. also works with the Fish and Wildlife Service (FWS) on several biological diversity projects in Asia and the Near East. Together, they are helping the newly established Wildlife Institute of India provide basic training and advanced degrees for Indian wildlife specialists and reserve managers. The government of Pakistan is using its A.I.D./FWS grant to initiate a system of clubs throughout the country to help Pakistani youth better understand the need for conservation, and the International Waterfowl Research Bureau is using its grant to compile an Indo-Malayan wetlands survey.

In addition, an advisor from the FWS continued to provide technical assistance on biological diversity to A.I.D. Central Bureaus and missions.

The National Park Service

A.I.D. is working with the National Park Service (NPS) and the World Wildlife Fund-US on a project to assist the Burmese government with training required to establish a national park system and a wildlife management program. In collaboration with the NPS and the Smithsonian

Institution, A.I.D. is sponsoring research on the rhinoceros and water buffalo of Nepal.

The NPS, with A.I.D. support, continued to provide technical assistance and training for the establishment of four nature reserves in the eastern province of Sri Lanka as part of the Mahaweli Environmental Project. The reserves were set up to protect endangered species and their habitats in the multi-billion dollar Mahaweli Development Scheme.

Partnerships for Policy Planning and Management

In addition to its field projects, A.I.D. fulfills its mandate to help developing countries by working with a variety of institutions and organizations to develop natural resource assessments, plans, and strategies; support international conferences and workshops where LDC experts have an opportunity to learn from one another; work closely with other bilateral donors; and support international organizations in their effort to integrate conservation and development.

A.I.D.-Assisted Countries

A.I.D. is helping a growing number of countries take action to understand their environmental and natural resource problems and develop strategies to incorporate environmental values in private and public programs.

Country environmental profiles, resource assessments, and conservation strategies are some of the most effective tools for conducting policy discussions in A.I.D.-assisted countries. A.I.D. supports their preparation as a way to help countries more carefully examine their environmental problems and to stimulate efforts to plan effective solutions.

The first round of profiles, written in the late 1970's, were prepared in the United States by US institutions using published sources. In recent years A.I.D. has supported more comprehensive in-country studies prepared by host-country organizations to ensure local participation, to build data sources and analytical capacity within the country, and to build local constituencies that will support new policies and practices. In the past two years, a special effort has been

made to improve the sections in each profile on conserving biological diversity and tropical forest resources.

In 1987, five A.I.D.-supported profiles were completed, covering Jamaica, Nepal, Central America, Thailand, and Rwanda.

Jamaica

The Jamaica Country Environmental Profile was formally released at a national seminar on the environment in November 1987. Written by Jamaican professionals, it was the first document of its kind to pull together facts, figures, policies, and programs from a wide diversity of sectors that impact on the environment. The project was supported by the Natural Resource Conservation Division within the Jamaican Ministry of Agriculture.

The profile has already had a direct impact on government and private environmental activities. The cabinet has approved the legal framework needed to establish a Natural Resource Conservation Authority to advise on environmental policies, monitor and assess environmental pollution, and act as a coordinating body for other agencies. The Ministries of Health and Agriculture have been requested to draft regulations to deal with the distribution, disposal, and licensing of pesticides. In addition, the profile recommends that the government draft a National Parks Act supporting the creation of national parks, including coastal and marine areas. The A.I.D. mission is working with the government to help identify areas that could be established as parks.

Nepal

The Nepal National Conservation Strategy (NCS) was completed in 1987 with endorsements of the National Planning Commission and the Council of Ministries. It was prepared under the auspices of the IUCN with support from A.I.D., the Canadian International Development Agency, and the Swiss Development Cooperation. The NCS contains a Conservation Action Agenda, which is linked to the objectives of the government's seventh plan (1985-1990).

Implementation of the strategy will involve the national government and regional, district, and village Panchayats.

An expanded effort to involve local people in the management of natural resources in each of the four biogeographic regions of Nepal will be a key component.

The strategy will be officially released by the government of Nepal in 1988 to the bilateral and multilateral donor community. The A.I.D. mission is already using the NCS as a guide to develop and expand its future programs.

Central America

The Central American profile, entitled Natural Resources and Economic Development in Central America, and funded by A.I.D.'s Regional Office for Central America and Panama (ROCAP), was officially published in Spanish and English in August 1987. It was released in Costa Rica and in Washington by the institutions jointly responsible for its preparation, the Costa Rican-based Tropical Agricultural Research and Training Center (CATIE) and the International Institute for Environment and Development. The principal findings were widely disseminated by the press throughout the region and in the United States.

The profile has had considerable influence in getting the seven individual countries of the region to examine their environmental policies and practices. Costa Rica, for example, has recently expanded the functions of its Ministry of Natural Resources, Energy, and Mines to include biological diversity; the Fundacion Neotropica, with the support of the Conservation Foundation, has prepared a state-of-the-environment report; and the government has begun work on its own national conservation strategy. During the 17th General Assembly of the IUCN, held in San Jose in January 1988, NGOs from each of the countries of the region officially announced the formation of REDES-C.A. (Regional Network of Non-governmental Conservation Organizations for Sustainable Development in Central America), which will support communication and institution strengthening at the grass roots level to encourage resource conservation and sustainable development.

ROCAP is using the profile as a planning document for its environmental and natural resource strategy for the next ten years and as the basis for planning new programs.

Thailand

The Thailand Natural Resources Profile was prepared by the Thailand Development Research Institute in cooperation with the National Environment Board. The purpose was to identify national environmental priorities, measure the consequences of environmental and resource problems, and develop strategies needed for a transition to sustainable forms of development. The report staff was drawn from 19 government agencies, universities, and institutes.

The report examines the status of Thailand's natural resources -- land, water, forests, wildlife and habitats, minerals, mangroves, and fisheries -- and their uses and importance to Thai society and then presents recommendations for improving resource management and protection. Separate sections are devoted to environmental quality -- air and noise, water, wastes, and accident prevention. The A.I.D. mission has used the findings and recommendations to plan a major new natural resource management project that includes forest management and nature conservation.

Rwanda

In 1985 the government of Rwanda and A.I.D. agreed to carry out a study of the Ruhengeri district that would help minimize the environmental problems associated with rapid population growth and intensive management of natural resources in this area. By 1987 the analysis was completed and the findings were published as Ruhengeri and Its Resources: An Environmental Profile of the Ruhengeri Prefecture. The report covered seven areas of concern: the bio-physical environment, human ecology and land use, soil erosion and degradation, forestry, water resources, Volcanoes National Park, and legislation and institutions.

The report identifies a number of successes: a national policy that promotes soil conservation, a 10-year reforestation effort that has reversed past trends in deforestation, improved park management, and growing awareness and interest in natural resource management. On the negative side, the report indicates that more marginal lands have been brought into cultivation, fallow periods have been reduced, new construction has added to the erosion burden, population pressure has increased the demand for wood, and there is still too much dependence on centralized authority for leadership.

The Ruhengeri profile has helped stimulate greater attention to the environment throughout Rwanda, and the Rwandan government has recently joined with A.I.D. and the World Bank to support the preparation of an environmental action plan that will address the country's natural resource management problems.

Profiles In Preparation

Profiles are now being prepared for the Eastern Caribbean, Colombia, and Jordan. In the four eastern Caribbean Islands (St. Lucia, St. Christopher-Nevis, Dominica, and Grenada), special effort is being made to pull together existing data to examine resource issues and develop an agenda for action for governments, NGOs, donor organizations, planners, and resource managers.

In addition, A.I.D., in collaboration with the World Bank, the Interamerican Development Bank, and other bilateral and multilateral donors, is supporting a study of the profiling process. The goal is to better determine what ingredients lead to a successful effort. The study, which will be completed in 1988, will contain guidelines that countries can use in developing resource strategies and preparing profiles in the future.

Other Donor Organizations

The amount of all official development assistance going to support forestry and biological conservation activities in developing countries is remarkably low. About 1% of assistance coming from multilateral development banks goes to the forestry sector.

With FY 1987 obligations estimated at \$61.1 million in forestry and biological diversity combined, A.I.D. continues to be a major provider of foreign assistance for this sector, but the level of funds does not adequately reflect the importance of forestry and wildlife to sustainable development. A.I.D. has to -- and does -- work with other donors, both private and public, to strengthen its programs in ways that increase attention to forestry and natural resource development priorities.

During 1987 A.I.D. continued its support of the Tropical Forestry Action Plan, worked to expand the role of

environmental assessment in the Organization for Economic Cooperation and Development (OECD), took the lead in establishing the Consultative Group on Biological Diversity, and supported the preparation of the World Resources Report.

Tropical Forestry Action Plan

The Tropical Forestry Action Plan (TFAP) is a major international effort to increase the relevance and effectiveness of forestry and related development programs in resolving the social, economic, and environmental problems resulting from tropical deforestation. It is based on two major reports released in 1985: Tropical Forests: A Call for Action by the World Resources Institute (WRI), the World Bank, and the UN Development Programme (UNDP); and Tropical Forestry Action Plan by the UN Food and Agriculture Organization (FAO). A collaborative effort between donors and recipient countries, the TFAP provides a framework for advancing policy reforms and investment priorities and for improving the coordination and effectiveness of development assistance programs in forestry.

The TFAP has five priority areas: land use on upland watersheds; forestry management for industrial uses; fuelwood and agroforestry; conservation of tropical forest ecosystems; and the strengthening of institutions for research, training, and extension. The TFAP has contributed significantly toward raising public awareness of the tropical deforestation problem. It has also resulted in forestry sector reviews that are the joint efforts of donor agencies and the national government of the country that is the subject of the review. When implemented at the country level, these reviews are expected to result in significant changes in policy and to stimulate greater attention to forestry development needs.

The Tropical Forestry Advisors Group meets twice a year to review progress being made in implementing the TFAP and to discuss ways to improve assistance programs within the TFAP framework. A.I.D. is a member of the advisors' group, along with the senior forestry advisors of the bilateral and multilateral development assistance agencies, UN agencies, and international NGOs.

Organization for Economic Cooperation and Development

The Organization for Economic Cooperation and Development (OECD), located in Paris, is a major intergovernmental organization of 24 industrialized countries, including the United States, Japan, France, West Germany, the United Kingdom, Italy, Canada, Spain, and Australia. Concerned principally with the goal of promoting economic development, it has since 1970 become increasingly involved in supporting policies and procedures to protect and enhance the environmental quality of member countries.

Working through the Environment Committee and the Development Assistance Committee (DAC), A.I.D. has been instrumental in getting other members to make it a policy of government to pursue environmentally sound development assistance activities. In 1986, OECD passed a resolution requiring all bilateral donors to develop environmental impact procedures similar to those used by A.I.D. With the support of the State Department, A.I.D. has also proposed that the OECD develop an environmental checklist to be used by the executive directors of OECD countries when reviewing projects supported by multilateral development institutions.

Consultative Group on Biological Diversity

The first meetings of the Consultative Group on Biological Diversity (CGBD) were held in October and December 1987. The group was established with A.I.D. support to help private foundations coordinate and expand their efforts to fund biological diversity conservation activities in developing countries. Founding members include the Ford Foundation, the C.S. Fund, the W. Alton Jones Foundation, the Geraldine R. Dodge Foundation, the Tinker Foundation, the Rockefeller Foundation, the John D. and Catherine T. MacArthur Foundation, the Jessie Smith Noyes Foundation, the Pew Charitable Trusts, the Rockefeller Brothers Fund, and A.I.D.

The CGBD, with a small secretariat housed at the Rockefeller Brothers Fund in New York, will provide an opportunity for its eleven participant members to learn more about the problems countries face in sustaining economically viable programs while preserving their biological heritage. The group will share information, identify priority areas for support, and in certain cases coordinate funding for conservation projects.

Initial discussions of the group indicate strong support in two areas: (1) the need for economists and ecologists to work together to improve measurements of the real value of renewable resources and to get this information into the hands of policy-makers in the developing countries and (2) to strengthen institutions working in Latin America on natural resource conservation.

World Resources Report

A.I.D., along with the World Bank, the UN Environment Programme, the UN Development Programme, and a number of private foundations, supports the preparation of the World Resources Report. These annual reports provide an assessment of the resource base that supports national, regional, and global economies. The reports, compiled by the World Resources Institute and the International Institute for Environment and Development, have included major sections on tropical forests and biological diversity.

The first edition, World Resources 1986, provided a basic overview of the world's forests, rangelands, and wildlife. Rates of tropical deforestation and the growing international effort to protect wildlife habitats were examined in detail. The forest and rangelands chapter of World Resources 1987 highlighted the growing importance of agroforestry in developing countries and emphasized the need for international assistance agencies to provide research and technical support.

The 1988-89 edition will focus on commercial timber operations in the tropics, looking at current practices and rates of removal, and at ways in which sustainable development can complement rather than be in conflict with the protection of biological diversity.

More than 20,000 copies of each edition of the report have been distributed worldwide. Part IV, World Resources Data Tables, has become the single best source of current, authoritative statistics on worldwide resource and environmental quality issues.

Chapter 4

BUILDING A.I.D.'s PROGRAMS FOR TROPICAL FORESTRY AND BIOLOGICAL DIVERSITY

A.I.D. has made a number of changes during the past two years to develop the institutional support needed to sustain biological diversity and tropical forestry conservation programs. It has undertaken a substantial effort to incorporate these concerns in preparing Country Development Strategy Statements (CDSSs), has funded special projects that provide support services, and has hired additional staff. It has undertaken a major change in how it supports economic development in Africa. These, along with specific developments in information and analysis and in training and technical support, are described below.

Country Development Strategy Statements

The most important process in A.I.D.'s programming at the mission level is the preparation of Country Development Strategy Statements. A CDSS is an intensive analysis of the host country's development prospects and problems and how they can be addressed by A.I.D. assistance. It is the key document for designing a US bilateral assistance program for each host country.

The preparation of a complete CDSS is required at least once every five years, or sooner if suggested by changing country conditions. Countries preparing CDSSs in FY 1988 and later are now expected to incorporate a background assessment on biological diversity and tropical forest conservation needs, as required by Sections 118 and 119 of the FAA.

A cable providing guidance on preparing the background assessment was sent to all missions in February 1988. (See Appendix 5.) The cable summarizes what the Agency expects to

see in mission documents and what purposes it expects assessments to serve. It recommends including, to the extent possible, information on: 1) laws and institutions affecting biological resources, including agencies of the host government, NGOs, and international institutions; 2) the status and management of protected areas; 3) the status and protection of endangered species; 4) conservation efforts outside protected areas, including managed natural ecosystems, impacts of development projects, and conservation facilities such as seed banks, zoos, and botanical gardens; 5) conservation of economically important species; 6) major issues in biological diversity and tropical forest conservation; and 7) recommendations and proposed actions. Missions are asked to give special consideration to activities that can be undertaken by the private sector (including PVOs and NGOs) or in collaboration with the Peace Corps or activities that can be financed by local currency programs.

To give the missions extra help, A.I.D. has established a Biological Diversity Technical Support Project in collaboration with the International Institute for Environment and Development, the World Wildlife Fund-US, and the Nature Conservancy. This project provides a range of short-term technical services to missions to assist them with the planning and design of biological diversity conservation initiatives, including preparation of CDSSs. Other sources of support are also available.

In January 1988, 24 missions were working on or had completed their CDSS assessments of biological diversity and tropical forests. They included: in Africa -- Madagascar, Niger, Rwanda, Sudan; in Asia and the Near East -- Egypt, Indonesia, Jordan, Morocco, Nepal, Oman, Pakistan, Philippines, South Pacific, Sri Lanka, Thailand, Tunisia, Yemen; in Latin America and the Caribbean -- Belize, El Salvador, Honduras, Jamaica, Panama, Peru, and the Caribbean Region.

Most of the documents completed so far propose a conservation program that deals with no more than four or five major problems that are geographically focused; have potential for multi-donor, PVO, and local NGO involvement; and develop a strong link between effective conservation and economic development. Almost without exception, the CDSSs propose developing a better database and deeper knowledge of the status of forest and biological resources in their countries.

By the end of 1987, a number of projects proposed in CDSS assessments were being designed. In Jamaica, the mission is assisting the Jamaican government in the establishment of a national parks and protected areas system. In Madagascar, sustainable agriculture and economic development activities are being developed in buffer zones surrounding two important protected areas vulnerable to encroachment, the Beza Mahafaly and Andohahela reserves.

Plan for Supporting Natural Resources Management in Sub-Saharan Africa

In 1987 A.I.D. launched its new, long-range natural resources management plan for Sub-Saharan Africa. It is the single most important effort within A.I.D. to upgrade the capacity of the Agency to plan and implement forestry, biological diversity, and other natural resource projects in Africa. The plan and its implementation require a reorientation of A.I.D.'s development goals in Africa. The basic premise is that A.I.D. should make natural resource management an important and integral component in all of its African programs, including agriculture and rural development, women and development, policy dialogues, human resources and training, and data collection. This will require adjustments not only in the kinds of assistance the Agency offers to African countries but also in the way it carries out its projects and activities.

The plan makes clear that the old assumptions concerning development and agriculture do not work in Africa. Farmers (and governments) cannot concentrate simply on producing more crops and livestock while planning to fix up damage done to the land and water later. The resource base in Africa is too fragile for such treatment. The plan stresses that efforts to increase productivity and stabilize crop and livestock production at higher levels can only be achieved by continually maintaining the resource base -- soils, vegetation, water, and wildlife. In addition, the plan points out that development assistance works best on projects that incorporate local and individual participation and on projects that build on existing values, knowledge, and institutions within African societies.

In the plan, the Sub-Saharan countries that receive US bilateral assistance have been divided into three groups, based on an initial assessment of land degradation, population density, threats to biological diversity, resource management problems, and the importance of the A.I.D. program in the country. Group I countries are those with the most serious problems and the most urgent need for assistance. They include: Guinea, Madagascar, Mali, Niger, Rwanda, Senegal/Gambia, and Sudan. Group II countries have specific natural resource issues that need serious attention. They include: Botswana, Burundi, Cameroon, Ghana, Kenya, Malawi, Somalia, Tanzania, and Uganda.

Implementing the plan requires that African A.I.D. missions, the Africa Bureau, and Central Bureaus engage in a number of activities that will lead to the sustainable use and development of natural resources. These activities include:

- o integrating natural resource concerns into the agricultural and rural development portfolios of A.I.D. missions;
- o increasing local currency support for natural resource management;
- o identifying and developing regional projects in applied research and extension;
- o increasing collaboration with other donor groups and the PVO/NGO community;
- o strengthening technical support staff in natural resources; and
- o strengthening the information, policy, and institutional base for natural resource management programs.

The key activity is the integration of natural resource concerns into mission portfolios. The other activities are intended to support this integration.

Techniques for Monitoring and Evaluating Trends in Biological Diversity

A.I.D. is supporting a project with the National Academy of Sciences to identify ways to monitor and evaluate the effectiveness of the Agency's biological diversity conservation projects. Begun in late 1987, the goal of this \$100,000 study, supported with Congressional earmark funds,

is to provide guidelines for evaluating biological diversity projects.

In the study, experts are looking for answers to such questions as: To what extent can changes in biological diversity be evaluated? How much time does it take for meaningful change to occur? What are the signals that nature provides that can be used to determine whether a project is effective? For example, does the presence of an increase in the number of species over a given area (excluding exotics) indicate an improvement in diversity? Can a single plant or animal species -- a key species -- be identified and used to indicate meaningful change? Which of many indicators can be used by managers to evaluate and plan on-the-ground activities? As basic as this sounds, it is essential that A.I.D. and other donors develop the analytical tools needed to assess project performance.

Natural Resource Economics

A.I.D. is supporting a number of projects and studies that will improve the understanding within the Agency and the development community of the costs and benefits of managing tropical forests and biological diversity within the context of sustainable development.

In October 1987, A.I.D.'s Bureau for Program and Policy Coordination, with assistance from the East-West Center, completed a revision of its Manual for Project Economic Analysis. For the first time, this basic document contains a section on ways to incorporate the environmental costs and benefits of projects. So many projects in the past failed when planners neglected to adequately account for environmental impacts in the project design or when they failed to identify the secondary impacts (many of them off-site) that later proved costly to correct.

One of the hardest tasks in project planning is to decide beforehand which environmental and resource impacts to include in an analysis and how to quantify and assign a dollar value to them. The manual provides a four-step approach to identifying such impacts, starting with the most obvious and most easily valued, using market prices. The manual also contains a brief overview of a number of techniques that can be used to give a dollar value to environmental and resource impacts.

In another project, A.I.D. has asked the International Union for Conservation of Nature and Natural Resources (IUCN) to prepare case studies and guidelines that illustrate economic incentives and disincentives for conserving biological diversity. The Agency wants to better understand how government policies create incentives and disincentives and to be able to identify more precisely the mechanisms that influence specific behaviors.

The loss of unique habitat in a moist tropical forest, for example, may result from a logging operation that is receiving a variety of subsidies and tax concessions, including cheap leases, free access roads and port facilities, reduced export taxes, subsidized credit and export finance, and tax holidays. The case studies will attempt to identify which kinds of incentives are critical to conservation and why. What are the tradeoffs and how are they made by government agencies, the private sector, and the international business and financial community? What can governments (and other organizations) do to design economic incentives that contribute to the preservation of biological diversity? What lessons can be learned from the cases studied?

A.I.D. is also supporting the East-West Center in Hawaii to undertake a study of the economics of protected area management in Thailand. The analysis will focus on quantifying the benefits of protected areas in terms of tourism promotion, biological diversity, and the preservation of essential ecological processes. Most such benefits do not appear directly in the marketplace and are therefore often ignored. As a result, traditional analyses rarely encourage protection, though it may indeed be the best long-term policy. In this study, the researchers will attempt to measure the benefits of existing protected areas in Thailand and the costs associated with their gradual loss through development or agricultural expansion.

The Executive Report of the Drylands Project, supported in part by A.I.D. funding and released in 1987, was prepared jointly by the Australian Government (the Department of Arts, Heritage, and the Environment), the UN Environment Programme, and the East-West Center. The report is intended to heighten awareness of the severity of dryland degradation problems and show the role that economic assessment and planning can play in resolving these issues.

Recent Evaluations and Guidelines

A.I.D.'s Center for Development Information and Evaluation recently completed the special study Agroforestry Projects for Small Farmers: A Project Manager's Reference. The study provides a review of A.I.D.'s activities and policies toward agroforestry, examples of agroforestry techniques, and a detailed review of A.I.D.'s agroforestry projects. The report identifies and analyzes four problem areas: selection of tree species and growing techniques, incentives and disincentives to invest in tree growing, institutional issues, and information for monitoring and evaluating field activities.

Arid and Semiarid Rangelands: Guidelines for Development, prepared for A.I.D. by Winrock International, was released in 1987. The report provides a framework for designing sustainable development activities in arid and semi-arid ecosystems based on the experience of past development efforts. It is the companion volume to Arid and Semiarid Lands: Sustainable Use and Management in Developing Countries, released in 1984.

Database Developments

Project planners concerned with biological diversity conservation need national, ecosystem, and site-specific data on the location and distribution of species, critical habitats, and protected areas. Planners concerned with tropical forest conservation need similar kinds of data on the extent, condition, and utilization of forests and forest products. They both need economic and demographic data to understand the growing pressures on the resources, access to bibliographic databases containing references to the best and latest scientific information, and timely data on projects supported by other donors and similar projects in other countries.

Collecting, processing, analyzing, storing, distributing, and updating databases is time-consuming and expensive, but without this information the Agency cannot plan efficient and effective projects. A number of efforts are underway within A.I.D. to upgrade and expand databases used for natural resource management and, specifically, those used for planning tropical forest and biological diversity conservation projects.

The Forestry Projects Database, used in the preparation of this report, was updated and expanded in FY 1987 to include a more comprehensive listing of A.I.D.'s forestry-related activities. The coverage was expanded to include activities administered by PVOs and small-activity grants administered by Central Bureaus. Access to the information was enhanced by upgrading the computer programs to include a user menu to search and retrieve all project information.

The Biological Diversity Activities Database, also used to prepare this report, was expanded in FY 1987 with the cooperation of the Fish and Wildlife Service. Activities included were standardized according to the strict definitions contained in Section 119(b) of the Foreign Assistance Act. The software, definitions, and protocols have been made available to other federal agencies that carry out biological diversity conservation in developing countries.

A.I.D.'s Center for Development Information and Evaluation (CDIE) has begun operating a computerized Country Trends Monitoring Network. It is being developed to encourage the exchange of data between A.I.D./Washington and A.I.D./missions, using a standard database management system and a set of well-defined statistical indicators. CDIE is putting together a database of statistics covering trends in macroeconomics, resource utilization, and social development. Data will be exchanged between missions and Washington headquarters using microcomputer diskettes. This arrangement provides an excellent opportunity to make country-level statistics on tropical forests, biological diversity, and other natural resource issues available to missions.

A.I.D. was a major sponsor and participant in a workshop entitled "Towards an Improved System of Information Management for Natural Resources Data," held in Costa Rica in February 1988 as part of the IUCN 17th General Assembly. A.I.D., the World Bank, IUCN, the UN Environment Programme, the Nature Conservancy, Conservation International, and representatives from many other organizations participated. The objective of the workshop was to explore ways in which international data producers and data users could jointly help developing countries get access to and make better use of timely, accurate, valid data on natural resources. It was agreed that providing reliable natural resource information for decision-making was absolutely vital if economic development is to be put on a more sustainable basis.

At the workshop's conclusion, participants agreed to establish a forum, which will begin to address the difficult issues of data comparability, sharing of information, accessing timely information, and supporting the development of conservation data and information centers in developing countries.

Staffing and Training

The Agency is increasing its professional capabilities in the areas of forestry, environment, and natural resources through recruitment and training. During FY 1987 and in FY 1988, people with technical skills in these areas are being recruited for Foreign Service and Civil Service positions in Washington and overseas. These direct-hire positions are being supplemented by additional contractual arrangements.

Over the past year, 12 additional professional staff have been hired. Nine of these were brought into the Agency through the International Development Intern (IDI) program and will be assigned overseas. Recruitment will continue in 1988 through the IDI program and a biological diversity advisor, a new position in Washington, will be added.

In line with the new Agency agricultural focus statement, which underscores the importance of maintaining the natural resource base, a two-week training program for direct-hire staff, particularly agricultural and rural development officers, will be offered in June 1988.

The course will focus on issues of sustainable development and natural resource management. Its faculty will have expertise in agricultural ecosystems, natural resource and environmental economics, farming systems, tropical ecology, and anthropology.

In addition, an analysis of direct-hire staff training needs was commissioned by the Office of Personnel Management to develop a strategy for the Agency for long- and short-term training in this field.

Appendix 1

TROPICAL FORESTRY PROJECTS BY COUNTRY AND REGION, FY 1987

The following information on A.I.D.'s tropical forestry projects was taken from the Forestry Project Database maintained by the Forestry Support Program and IDEA Inc. Only projects active in FY 1987 for which fiscal information was available are included.

Table A-1

TROPICAL FORESTRY PROJECTS BY COUNTRY AND REGION, FY 1987

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
AFRICA						
AFRICA REGIONAL ENERGY INITIATIVES FOR AFRICA (6980424)	82/	88/12	13500	30	4050	165
AFRICAN MANPOWER DEVELOPMENT II (6980433)	82/	92/09	42000	2	840	57
NATURAL RESOURCES MANAGEMENT SUPPORT (6980467)	87/09	90/09	8510	50	4255	375
ENVIRONMENTAL TRAINING AND MANAGEMENT IN AFRICA (6980427)	80/	88/09	7625	5	381	0
REGIONAL REMOTE SENSING II (EAST AFRICA) (6980456)	86/	91/09	2500	20	500	200
REMOTE SENSING II (WEST AFRICA) (6980457)	86/	91/	1575	20	315	315
BOTSWANA						
RURAL DEVELOPMENT (RURAL SECTOR GRANT II) (6330077)	80/	88/09	6876	10	688	101
BOTSWANA ENERGY AND ENVIRONMENT PROGRAM (6330206)	85/07	88/06	33	85	28	4
BURKINA FASO						
SOUTHWEST REGIONAL REFORESTATION PROJECT (6860934)	85/	89/08	1000	100	1000	0
BURUNDI						
BURUNDI FOREST (6950105)	82/	87/12	1144	100	1144	0
SMALL FARMING SYSTEMS RESEARCH (6950106)	83/	91/	7790	5	390	0

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
CAMEROON AGRICULTURAL CEREALS RESEARCH (6310052)	85/	95/02	65344	20	13069	691
AGRICULTURAL EDUCATION (6310031)	82/	89/12	45481	20	9096	800
COMMUNITY REFORESTATION (CARE) (6310267)	86/07	90/06	150	100	150	0
CAPE VERDE WATERSHED DEVELOPMENT (WATERSHED MANAGEMENT II) (6550013)	84/	90/	12402	10	1240	0
CHAD PVO WATERSHED DEVELOPMENT (6770051)	85/	89/	12725	5	636	200
COMOROS LAND AND SOIL CONSERVATION (CARE) (6020001)	84/	91/05	3500	40	1400	240
CONGO CONGO MANPOWER TRAINING (6790007)	87/	91/	2312	15	347	47
GAMBIA SOIL AND WATER RESOURCES MANAGEMENT UNIT (6350202)	78/	87/12	2747	5	137	0
AGRICULTURAL RESEARCH & DIVERSIFICATION (6350219)	85/	92/06	18000	10	1800	196

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
GUINEA SMALLHOLDERS PRODUCTION PREPARATION (6750204)	83/	89/	3800	20	760	0
KENYA ARID AND SEMI-ARID LANDS DEVELOPMENT (KITUI) (6150172)	79/	97/12	15571	10	1557	0
LESOTHO LESOTHO AGRIC PRODUCTION AND INSTITUTIONAL SUPPORT (LAPIS) (6320221)	85/08	91/08	26100	5	1305	256
MALAWI AGRICULTURAL RESEARCH AND EXTENSION (6120215)	85/	90/	14000	5	700	238
MALI LIVESTOCK SECTOR II (6880218)	82/	91/	18294	10	1829	0
VILLAGE REFORESTATION (6880937)	83/	90/	655	100	655	750
MAURITANIA ONVS AGRICULTURAL RESEARCH (CYCLE II) (6820957)	84/	94/06	11820	1	118	0
HUMAN RESOURCE DEVELOPMENT (6820233)	78/	90/12	6591	1	66	18

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
NIGER						
NIAHAY DEPARTMENT DEVELOPMENT PHASE II (6830240)	81/	88/12	13582	5	679	66
FORESTRY AND LAND USE PLANNING (6830230)	80/	88/06	4223	100	4223	0
RWANDA						
GITUZA FORESTRY (6980502.96)	84/09	88/12	3000	80	2400	0
RUHENGERRI RESOURCE ANALYSIS AND MANAGEMENT (6980427.96)	85/04	99/99	640	25	160	0
SAHEL REGIONAL						
NIGER RIVER BASIN DEVELOPMENT (PHASE II) (6250944)	82/	87/06	10500	10	1050	0
SAHEL HUMAN RESOURCES DEVELOPMENT III (6250977)	86/	93/	17000	10	1700	600
SENEGAL						
SENEGAL CEREALS PRODUCTION II (6850235)	80/	87/12	7700	9	693	0
COMMUNITY AND ENTERPRISE DEVELOPMENT--PYO (6850260)	84/	90/06	9000	5	450	0
REFORESTATION AND SOIL CONSERVATION (6850283)	86/	93/07	10000	100	10000	4500
SOMALIA						
CENTRAL RANGELANDS DEVELOPMENT (6490108)	79/	88/	20884	5	1044	0

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
JUBA DEVELOPMENT ANALYTICAL STUDIES (6490134)	84/	88/	8550	40	3420	0
SUDAN						
RURAL RENEWABLE ENERGY (6500041)	81/	89/	5600	25	1400	275
EASTERN REFUGEE REFORESTATION (CARE) (6500064)	83/04	88/04	5050	100	5050	500
REFORESTATION AND ANTIDESERTIFICATION (6500082)	87/	92/09	12860	100	12860	3140
TANZANIA						
FARMING SYSTEMS RESEARCH (6210156)	82/	99/99	3000	20	600	0
UGANDA						
VILLAGE FORESTRY (CARE) (6170267)	86/07	90/06	215	100	215	26
ZAIRE						
APPLIED AGRICULTURE RESEARCH & EXTENSION (6600091)	83/	89/	15000	5	750	200
Africa Subtotal			514349		95150	13960
ASIA/NEAR EAST						
ASEAN						
ASEAN COASTAL RESOURCES MANAGEMENT (4980286)	85/	88/07	5000	5	250	0
ASEAN WATERSHED MANAGEMENT (4980258.03)	83/07	88/07	3000	100	3000	0

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
ASIA REGIONAL REGIONAL ENVIRONMENTAL ACTIVITIES (3980178)	87/	87/	1125	20	225	50
BANGLADESH AGRICULTURAL RESEARCH II (3880051)	81/	87/12	41000	2	820	150
BURMA AGRICULTURAL PRODUCTION (4820007)	86/	91/	30000	5	1500	275
INDIA HILL AREAS LAND AND WATER DEVELOPMENT (3860489)	84/	91/09	54000	6	3240	480
NATIONAL SOCIAL FORESTRY SUPPORT (3860495)	85/	90/07	84700	100	84700	12500
AGRICULTURE RESEARCH (3860470)	83/	92/06	20000	20	4000	600
ALTERNATIVE ENERGY RESOURCES DEVELOPMENT (3860474)	82/	88/06	7000	46	3220	0
MADHYA PRADESH SOCIAL FORESTRY (3860475)	81/	87/03	25000	100	25000	0
MAHARASHTRA SOCIAL FORESTRY (3860478)	82/	90/09	30000	100	30000	0
INDONESIA PROVINCIAL AREA DEVELOPMENT PROGRAM II (4970276)	79/	89/12	41500	6	2490	0
CITANDUY RIVER BASIN DEVELOPMENT II (4970281)	80/09	88/09	22850	12	2742	0

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
UPLAND AGRICULTURE AND CONSERVATION (4970311)	84/07	91/06	18900	15	2835	0
APPLIED AGRICULTURE RESEARCH (4970302)	80/09	92/09	33000	12	3960	0
EASTERN ISLANDS AGRICULTURAL EDUCATION (4970293)	79/	88/07	11500	20	2300	0
PUSPIPTEK ENERGY RESEARCH LABORATORY (4970333)	82/	89/09	12250	15	1838	0
MOROCCO PLANNING, ECONOMICS, AND STATISTICS FOR AGRICULTURE (6080182)	83/09	93/09	12500	5	625	30
RENEWABLE ENERGY DEVELOPMENT (6080159)	80/04	89/09	9671	3	290	18
NEAR EAST REGIONAL REGIONAL ENVIRONMENTAL ACTIVITIES (3780178)	84/	89/09	600	10	60	0
NEPAL RURAL AREA DEVELOPMENT-RAPTI ZONE (3670129)	80/08	88/01	24000	12	2880	132
AGRICULTURAL RESEARCH AND PRODUCTION (3670149)	85/05	90/11	10000	20	2000	500
RESOURCE CONSERVATION AND UTILIZATION (3670132)	80/07	87/07	26998	25	6750	352
REFORESTATION (3670156)	86/11	90/07	3125	100	3125	1000
PVO CO-FINANCING (3670144)	81/	88/08	2750	10	275	0

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
PAKISTAN FORESTRY PLANNING AND DEVELOPMENT (3910481)	83/08	91/08	30600	100	30600	0
NORTH-WEST FRONTIER AREA DEVELOPMENT (3910485)	83/	88/12	50400	5	2520	50
ON-FARM WATER MANAGEMENT (3910413)	77/	87/06	10600	20	2120	0
PHILIPPINES PROJECT DESIGN (4920343)	80/07	89/09	18000	10	1800	400
RURAL ENERGY DEVELOPMENT (4920375)	82/08	88/07	25000	60	15000	0
BICOL INTEGRATED AREA DEVELOPMENT III (4920289)	79/	87/06	5000	6	300	0
RAINFED RESOURCES DEVELOPMENT (4920366)	82/09	89/09	28052	32	8337	0
PVO CO-FINANCING II (4920367)	84/	92/09	16000	15	2400	450
SRI LANKA REFORESTATION AND WATERSHED MANAGEMENT (3830055)	80/07	88/07	10450	100	10450	0
MAHAWELI ENVIRONMENT PROJECT (3830075)	82/09	87/09	5000	80	4000	0
THAILAND NORTHEAST RAINFED AGRICULTURAL DEVELOPMENT (4930308)	81/	88/08	10000	8	800	0
RENEWABLE NON-CONVENTIONAL ENERGY DEVELOPMENT (4930304)	79/	88/07	5000	14	700	0

Country Project Title (Project Number)	Start End Date Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
HIGHLAND AREA DEVELOPMENT (4930294)	80/08 89/06	16100	35	5635	350
TUNISIA AGRICULTURE TECHNOLOGY TRANSFER (6640304)	78/08 90/12	8500	5	425	0
Asia/Near East Subtotal		767171		273212	17337
CENTRAL					
FVA CARE MATCHING GRANT (FVA) (9380267)	85/08 90/	8500	35	2975	622
FVA/PVC BIDEN PELL DEVELOPMENT EDUCATION GRANTS (9380230)	85/ 90/	5200	2	104	54
PPC/PD ENERGY, SCIENCE, AND TECHNOLOGY STUDIES (9300077)	77/ 99/99	1313	3	39	3
PPC/PDPR RURAL DEVELOPMENT RESEARCH (9300091)	81/ 99/99	2380	10	238	73
S&T/FWR COASTAL RESOURCES MANAGEMENT (9365518)	83/ 90/09	8000	10	800	0
FORESTRY/FUELWOOD RESEARCH AND DEVELOPMENT (9365547)	85/ 95/09	40000	100	40000	2567

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
DEVELOPMENT STRATEGIES FOR FRAGILE LANDS (DESFIL) (9365438)	86/	96/09	6100	50	3050	250
INVESTMENT PACKAGING (9400002.41)	84/09	89/03	15200	3	456	0
INNOVATIVE SCIENTIFIC RESEARCH (9365542)	81/	89/09	24180	20	4836	1072
FOREST RESOURCES MANAGEMENT (9365519)	80/09	90/09	19821	100	19821	2207
ENVIRONMENTAL PLANNING & MANAGEMENT (9365517)	82/09	87/09	6115	5	306	0
ENVIRONMENT/NATURAL RESOURCES INFORMATION BASE (9311209)	79/	88/07	3100	40	1240	0
S&T/AGR INTERNATIONAL AGRICULTURE RESEARCH CENTERS(CGIAR) (9364111)	68/	99/99	43030	1	430	0
S&T/OPDA EMERGENCY RELIEF AND REHABILITATION (9380950)	81/	99/99	6396	5	320	0
S&T/RD APPROPRIATE TECHNOLOGY INTERNATIONAL II (9365428)	83/	89/09	24606	8	1968	240
S&T/SCI US/ISRAEL PROGRAM FOR COOPERATIVE DEVELOPMENT RESEARCH (9365544)	81/	99/99	19000	8	1520	400
Central Bureaus Subtotal			232941		78103	7488

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
LATIN AMERICA AND THE CARIBBEAN						
BOLIVIA						
DEPARTMENTAL DEVELOPMENT CORPORATIONS (5110511)	79/	87/03	10000	5	500	0
CHAPARE REGIONAL DEVELOPMENT (5110543)	83/08	90/	20750	15	3112	129
COSTA RICA						
AGRARIAN SETTLEMENT PRODUCTIVITY (5150148)	80/09	87/09	10000	20	2000	0
GANDOCA LAND TITLING & WILDLIFE REFUGE (5150268)	85/09	88/09	71	75	53	19
DOMINICA						
DOMINICAN FOREST RESOURCES & DEVELOPMENT (5420268)	85/09	88/09	54	100	54	25
DOMINICAN REPUBLIC						
ENERGY CONSERVATION AND RESOURCES DEVELOPMENT (5170144)	82/	88/07	17532	10	1753	0
NATURAL RESOURCES MANAGEMENT (5170126)	81/	88/07	11000	41	4510	0
ECUADOR						
ALTERNATIVE ENERGY SOURCES (5180029)	81/	88/07	2700	10	270	0
PRIVATE AND VOLUNTARY ORGANIZATIONS (5189999)	78/	88/	3415	30	1024	214

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
FORESTRY SECTOR DEVELOPMENT (5180023)	82/	90/03	8100	100	8100	0
EMERGENCY REHABILITATION (5180046)	84/	87/	23000	10	2300	0
ENVIRONMENTAL CONSERVATION OPG-PVO (5180031)	80/05	88/07	340	5	17	0
EL SALVADOR						
PUBLIC SECTOR EMPLOYMENT (5190256)	80/03	88/07	40885	43	17581	0
GUATEMALA						
HIGHLANDS AGRICULTURAL DEVELOPMENT (5200274)	83/	90/09	12000	35	4200	0
SMALL FARMER DIVERSIFICATION SYSTEMS (5200255)	81/	90/12	15696	10	1570	8
HAITI						
AGROFORESTRY OUTREACH - PVO (5210122)	81/	90/	11500	100	11500	5400
NGO SUPPORT (5210169)	83/03	99/99	4096	100	4096	0
TARGETED WATERSHED MANAGEMENT (CONSERVATION & IRRIGATION MGMT) (5210191)	86/	91/09	15000	10	1500	270
PRIVATE AND VOLUNTARY ORGANIZATIONS (5219999)	75/	88/07	2192	5	110	0
AGRICULTURE DEVELOPMENT SUPPORT II (5210092)	78/	88/05	3808	25	952	125
NONGOVERNMENTAL ORGANIZATION SUPPORT II (5210182)	85/	88/07	3400	5	170	0

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
HONDURAS NATURAL RESOURCES MANAGEMENT (5220168)	80/07	89/05	14995	30	4498	846
JAMAICA HILLSIDE ASSESSMENT (5320113)	85/	87/12	600	25	150	0
HILLSIDE AGRICULTURE (5320101)	87/	94/02	10000	10	1000	80
ENERGY SECTOR ASSISTANCE (5320065)	81/	87/09	13700	5	685	0
TECHNICAL CONSULTATIONS AND TRAINING (5320079)	81/	89/12	18460	2	369	35
AGROINDUSTRIAL DEVELOPMENT (5320081)	82/	87/09	10489	2	210	0
LAC/REG. (MEXICO) INTER-COUNTRY TECHNOLOGY TRANSFER (5980616)	84/	88/07	150	100	150	1382
LAC/REGIONAL DEVELOPMENT OF ENVIRONMENTAL MANAGEMENT SYSTEM (5980605)	79/	99/99	7030	5	352	16
PANAMA WATERSHED MANAGEMENT (5250191)	79/	88/07	10000	20	2000	0
NATURAL RESOURCE MANAGEMENT (5250248)	87/	89/06	35700	100	35700	6659
INTEGRATED RURAL DEVELOPMENT (5250186)	77/11	87/10	9700	10	970	0

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
NATURAL RESOURCES EDUCATION (5250257)	84/	88/03	1000	30	300	0
PERU PRIVATE VOLUNTARY ORGANIZATIONS (5279999)	78/	88/07	975	10	98	8
SEPAS EXPANDED REFORESTATION (FFW) (5270231)	82/	87/05	950	100	950	0
LAND USE INVENTORY AND ENVIRONMENTAL PLANNING (5270202)	80/09	87/06	1600	5	80	0
DISASTER RELIEF AND REHABILITATION (5270277)	83/	87/05	64960	5	3248	0
CENTRAL SELVA RESOURCE MANAGEMENT (5270240)	82/	90/09	22000	28	6160	0
RDO/C BASIC NEEDS TRUST FUND (5380103)	84/	88/07	12700	5	635	0
ST. KITTS/NEVIS RESOURCE MANAGEMENT (5380108)	84/	88/07	2000	30	600	0
CUMBERLAND HYDRO ELECTRIC (5380091)	84/	88/09	8000	5	400	0
PROJECT DEVELOPMENT AND SUPPORT (5380000)	75/	88/07	1730	10	173	10
ROCAP FRAGILE LAND MANAGEMENT (5960140)	87/	91/	10000	50	5000	500
REGIONAL TROPICAL WATERSHED MANAGEMENT (5960106)	83/	88/01	6000	30	1800	500
FUELWOOD AND ALTERNATIVE ENERGY SOURCES (5960089)	79/	87/12	8800	50	4400	0

Country Project Title (Project Number)	Start Date	End Date	LOP Obligation (in \$1000)	Percent Forestry	LOP Forestry Obligation (in \$1000)	FY87 Forestry Obligation (in \$1000)
TREE CROP PRODUCTION (5960117)	85/	91/08	4940	100	4940	1380
Latin America/Caribbean Subtotal			492018		140241	17398
Total			2006479		586706	56183

Appendix 2

BIOLOGICAL DIVERSITY ACTIVITIES BY COUNTRY AND REGION, FY 1987

The following information on A.I.D.'s biological diversity activities was taken from the Biological Diversity Activities Database maintained by the International Institute for Environment and Development with the cooperation of the Office of International Affairs, the Fish and Wildlife Service. The list includes earmarked and non-earmarked activities supported during FY 1987.

Table A-2

BIOLOGICAL DIVERSITY ACTIVITIES BY
COUNTRY AND REGION, FY 1987

Country/Region	Activity Title	FY 1987 Obligation
AFRICA		
Burundi	Bururi Forest	0
Kenya	Rhino Conservation*	50,000
Madagascar	Madagascar Wildlands and Human Needs*	200,000
Mali	Niger Delta Wetlands Conservation*	150,000
Somalia	Juba Development Analytical Studies	0
Tanzania	Wildlife Management at Mweka College	150,000
Regional	National Park Service Resources Support Services Agreement	200,000
Africa Total		<u>\$750,000</u>
ASIA/NEAR EAST		
Burma	Conservation Professional Training*	50,000
India	Plant Genetic Resources	390,000
Indonesia	Indigenous NGO Support*	54,000
Nepal	Rhino/Water Buffalo Interactions with Humans*	75,000

Country/Region	Activity Title	FY 1987 Obligation
Philippines	Philippines Biological Diversity Survey and Action Plan*	78,000
Sri Lanka	Mahaweli Environmental Project	0
Thailand	Thailand Biodiversity Grants*	60,856
Tunisia	Endangered Species and Habitat Study	13,000
Yemen	Alternatives to Rhinoceros-Horn Dagger Handles*	7,000
Regional	Regional Environmental Activities	120,000
Regional	Biological Diversity Small Grants Program*	293,144
Regional	Project Development and Support	77,000
Asia/Near East Total		\$1,218,000
<hr/>		
LATIN AMERICA/ CARIBBEAN		
<hr/>		
Belize	Hol Chan Marine Park*	60,000
Costa Rica	BOSCOSA (Corcovado National Park Buffer Zone)*	75,000
Costa Rica	Nature Tourism in Latin America	63,000
Ecuador	Botanical Survey of Eastern Ecuador*	100,000

Country/Region	Title	FY 1987 Obligation
Ecuador	EDUNAT II	0
Haiti	National Marine Park*	65,000
Panama	Natural Resources Management (suspended)	339,000
Peru	Yanachaga/Chemillen National Park*	200,000
Regional	Organization of Tropical Studies Training Course	63,000
Regional	Smithsonian Protocol for Biodiversity Indicators	53,000
Latin America/ Caribbean Total		<u>\$1,018,000</u>

CENTRAL

Bolivia, Panama	Conservation Data Center	0
Global	Biological Diversity Technical Support	270,000
Global	A.I.D./Peace Corps Biodiversity Initiative*	150,000
Global	Biological Diversity Consultative Group*	150,000
Global	Biological Diversity Conservation in Development	0
Ecuador, Sri Lanka, Thailand	Coastal Resources Management	156,000

Country/Region	Activity Title	FY 1987 Obligation
Global	Environmental Planning and Management	217,000
Global	Stock Assessment of Fisheries	135,000
Global	CGIAR (Support to International Board on Plant Genetic Resources)	150,000
Latin America	Development Strategies for Fragile Lands	75,000
Global	Wildlands and Human Needs	330,000
Global	Economic Incentives for Biological Diversity Conservation I*	50,000
Global	Economic Incentives for Biological Diversity Conservation II	50,000
Global	Techniques for Monitoring and Evaluating Trends in Biological Diversity*	100,000
Global	Science Advisor's Small Grants Program	69,000
Central Total		\$1,902,000
Total		\$4,888,000

* Activities supported by the FY 1987 Congressional earmark.

Appendix 3

SECTIONS 101, 118, AND 119 OF THE FOREIGN
ASSISTANCE ACT OF 1961, AS AMENDED

Be it enacted by the Senate and House of Representatives of
the United States of America in Congress assembled, That this
Act may be cited as "The Foreign Assistance Act of 1961."

Part 1

Chapter 1--Policy; Development Assistance Authorizations

Sec. 101. General Policy.--(a) The Congress finds that fundamental political, economic, and technological changes have resulted in the interdependence of nations. The Congress declares that the individual liberties, economic prosperity, and security of the people of the United States are best sustained and enhanced in a community of nations which respect individual civil and economic rights and freedoms and which work together to use wisely the world's limited resources in an open and equitable international economic system. Furthermore, the Congress reaffirms the traditional humanitarian ideals of the American people and renews its commitment to assist people in developing countries to eliminate hunger, poverty, illness, and ignorance.

Therefore, the Congress declares that a principal objective of the foreign policy of the United States is the encouragement and sustained support of the people of developing countries in their efforts to acquire the knowledge and resources essential to development and to build the economic, political, and social institutions which will improve the quality of their lives.

Reprinted from US Congress. Senate, Committee on Foreign Relations, and House, Committee on Foreign Affairs. Legislation on Foreign Relations Through 1986. Washington, DC: US Government Printing Office, 1987.

United States development cooperation policy should emphasize four principal goals:

- (1) the alleviation of the worst physical manifestations of poverty among the world's poor majority;
- (2) the promotion of conditions enabling developing countries to achieve self-sustaining economic growth with equitable distribution of benefits;
- (3) the encouragement of development processes in which individual civil and economic rights are respected and enhanced; and
- (4) the integration of the developing countries into an open and equitable international economic system.

The Congress declares that pursuit of these goals requires that development concerns be fully reflected in United States foreign policy and that United States development resources be effectively and efficiently utilized.

(b) Under the policy guidance of the Secretary of State, the agency primarily responsible for administering this part should have the responsibility for coordinating all United States development-related activities.

* * *

SEC. 118. TROPICAL FORESTS.

(a) IMPORTANCE OF FORESTS AND TREE COVER.--In enacting section 103(b)(3) of this Act the Congress recognized the importance of forests and tree cover to the developing countries. The Congress is particularly concerned about the continuing and accelerating alteration, destruction, and loss of tropical forests in developing countries, which pose a serious threat to development and the environment. Tropical forest destruction and loss--

- (1) result in shortages of wood, especially wood for fuel; loss of biologically productive wetlands; siltation of lakes, reservoirs, and irrigation systems; floods; destruction of indigenous peoples; extinction of plant and animal species; reduced capacity for food production; and loss of genetic resources; and

- (2) can result in desertification and destabilization of the earth's climate.

Properly managed tropical forests provide a sustained flow of resources essential to the economic growth of developing countries, as well as genetic resources of value to developed and developing countries alike.

(b) PRIORITIES.--The concerns expressed in subsection (a) and the recommendations of the United States Interagency Task Force on Tropical Forests shall be given high priority by the President--

(1) in formulating and carrying out programs and policies with respect to developing countries, including those relating to bilateral and multilateral assistance and those relating to private sector activities; and

(2) in seeking opportunities to coordinate public and private development and investment activities which affect forests in developing countries.

(c) ASSISTANCE TO DEVELOPING COUNTRIES.--In providing assistance to developing countries, the President shall do the following:

(1) Place a high priority on conservation and sustainable management of tropical forests.

(2) To the fullest extent feasible, engage in dialogues and exchanges of information with recipient countries--

(A) which stress the importance of conserving and sustainably managing forest resources for the long-term economic benefit of those countries, as well as the irreversible losses associated with forest destruction, and

(B) which identify and focus on policies of those countries which directly or indirectly contribute to deforestation.

(3) To the fullest extent feasible, support projects and activities -

(A) which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and

(B) which help developing countries identify and implement alternatives to colonizing forested areas.

(4) To the fullest extent feasible, support training programs, educational efforts, and the establishment or strengthening of institutions which increase the capacity of developing countries to formulate forest policies, engage in relevant land-use planning, and otherwise improve the management of their forests.

(5) To the fullest extent feasible, help end destructive slash-and-burn agriculture by supporting stable and productive farming practices in areas already cleared or degraded and on lands which inevitably will be settled, with special emphasis on demonstrating the feasibility of agroforestry and other techniques which use technologies and methods suited to the local environment and traditional agricultural techniques and feature close consultation with and involvement of local people.

(6) To the fullest extent feasible, help conserve

forests which have not yet been degraded, by helping to increase production on lands already cleared or degraded through support of reforestation, fuelwood, and other sustainable forestry projects and practices, making sure that local people are involved at all stages of project design and implementation.

(7) To the fullest extent feasible, support projects and other activities to conserve forested watersheds and rehabilitate those which have been deforested, making sure that local people are involved at all stages of project design and implementation.

(8) To the fullest extent feasible, support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing, including reforestation, soil conservation, and other activities to rehabilitate degraded forest lands.

(9) To the fullest extent feasible, support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation, including research in agroforestry, sustainable management of natural forests, small-scale farms and gardens, small-scale animal husbandry, wider application of adopted traditional practices, and suitable crops and crop combinations.

(10) To the fullest extent feasible, conserve biological diversity in forest areas by--

(A) supporting and cooperating with United States Government agencies, other donors (both bilateral and multilateral), and other appropriate governmental, intergovernmental, and nongovernmental organizations in efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis;

(B) whenever appropriate, making the establishment of protected areas a condition of support for activities involving forest clearance or degradation; and

(C) helping developing countries identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas.

(11) To the fullest extent feasible, engage in efforts to increase the awareness of United States Government agencies and other donors, both bilateral and multilateral, of the immediate and long-term value of tropical forests.

(12) To the fullest extent feasible, utilize the

resources and abilities of all relevant United States Government agencies.

(13) Require that any program or project under this chapter significantly affecting tropical forests (including projects involving the planting of exotic plant species)--

(A) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and

(B) take full account of the environmental impacts of the proposed activities on biological diversity, as provided for in the environmental procedures of the Agency for International Development.

(14) Deny assistance under this chapter for--

(A) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner which minimizes forest destruction and that the proposed activity will produce positive economic benefits and sustainable forest management systems; and

(B) actions which significantly degrade national parks or similar protected areas which contain tropical forests or introduce exotic plants or animals into such areas.

(15) Deny assistance under this chapter for the following activities unless an environmental assessment indicates that the proposed activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development:

(A) Activities which would result in the conversion of forest lands to the rearing of livestock.

(B) The construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undegraded forest lands.

(C) The colonization of forest lands.

(D) The construction of dams or other water control structures which flood relatively undegraded forest lands.

(d) PVOs AND OTHER NONGOVERNMENTAL ORGANIZATIONS.--Whenever feasible, the President shall accomplish the objectives of this section through projects managed by private and voluntary organizations or international, regional, or national nongovernmental organizations which are active in the region or country where the project is located.

(e) COUNTRY ANALYSIS REQUIREMENTS.--Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of--

(1) the actions necessary in that country to achieve conservation and sustainable management of tropical forests, and

(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

(f) ANNUAL REPORT.--Each annual report required by section 634(a) of this Act shall include a report on the implementation of this section.

* * *

Sec 119. Endangered Species.--(a) The Congress finds the survival of many animal and plant species is endangered by overhunting, by the presence of toxic chemicals in water, air and soil, and by the destruction of habitats. The Congress further finds that the extinction of animal and plant species is an irreparable loss with potentially serious environmental and economic consequences for developing and developed countries alike. Accordingly, the preservation of animal and plant species through the regulation of the hunting and trade in endangered species, through limitations on the pollution of natural ecosystems, and through the protection of wildlife habitats should be an important objective of the United States development assistance.

(b) In order to preserve biological diversity, the President is authorized to furnish assistance under this part to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs. Special efforts should be made to establish and maintain wildlife sanctuaries, reserves, and parks; to enact and enforce anti-poaching measures; and to identify, study, and catalog animal and plant species, especially in tropical environments.

(c) FUNDING LEVEL.--For fiscal year 1987, not less than \$2,500,000 of the funds available to carry out this part (excluding funds made available to carry out section 104(c)(2), relating to the Child Survival Fund) shall be allocated for assistance pursuant to subsection (b) for activities which were not funded prior to fiscal year 1987. In addition, the Agency for International Development shall, to the fullest extent possible, continue and increase assistance pursuant to subsection (b) for activities for

which assistance was provided in fiscal years prior to fiscal year 1987.

(d) COUNTRY ANALYSIS REQUIREMENTS.--Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of--

- (1) the actions necessary in that country to conserve biological diversity, and
- (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

(e) LOCAL INVOLVEMENT.--To the fullest extent possible, projects supported under this section shall include close consultation with and involvement of local people at all stages of design and implementation.

(f) PVOs AND OTHER NONGOVERNMENTAL ORGANIZATIONS.--Whenever feasible, the objectives of this section shall be accomplished through projects managed by appropriate private and voluntary organizations, or international, regional, or national nongovernmental organizations, which are active in the region or country where the project is located.

(g) ACTIONS BY AID.--The Administrator of the Agency for International Development shall--

- (1) cooperate with appropriate international organizations, both governmental and nongovernmental;
- (2) look to the World Conservation Strategy as an overall guide for actions to conserve biological diversity;
- (3) engage in dialogues and exchanges of information with recipient countries which stress the importance of conserving biological diversity for the long-term economic benefit of those countries and which identify and focus on policies of those countries which directly or indirectly contribute to loss of biological diversity;
- (4) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity;
- (5) whenever possible, enter into long-term agreements in which the recipient country agrees to protect ecosystems or other wildlife habitats recommended for protection by relevant governmental or nongovernmental organizations or as a result of activities undertaken pursuant to paragraph (6), and the United States agrees to provide, subject to obtaining the necessary appropriations, additional assistance necessary for the

establishment and maintenance of such protected areas;

(6) support, as necessary and in cooperation with the appropriate governmental and nongovernmental organizations, efforts to identify and survey ecosystems in recipient countries worthy of protection;

(7) cooperate with and support the relevant efforts of other agencies of the United States Government, including the United States Fish and Wildlife Service, the National Park Service, the Forest Service, and the Peace Corps;

(8) review the Agency's environmental regulations and revise them as necessary to ensure that ongoing and proposed actions by the Agency do not inadvertently endanger wildlife species or their critical habitats, harm protected areas, or have other adverse impacts on biological diversity (and shall report to the Congress within a year after the date of enactment of this paragraph on the actions taken pursuant to this paragraph);

(9) ensure that environmental profiles sponsored by the Agency include information needed for conservation of biological diversity; and

(10) deny any direct or indirect assistance under this chapter for actions which significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas.

(h) ANNUAL REPORTS.--Each annual report required by section 634(a) of the Act shall include, in a separate volume, a report on the implementation of this section.

Appendix 4

CRITERIA FOR REVIEWING A.I.D.'S BIOLOGICAL DIVERSITY PROJECTS

The following criteria were used by the A.I.D. internal Biological Diversity Working Group to review projects for support under the FY 1987 Congressional earmark, December 16, 1986. Not ranked in priority.

Administrative Criteria:

1. Does the project meet the requirements of Section 119?
2. What is the level of mission or Embassy concurrence or willingness to cooperate and contribute money?
3. What is the level of host-country and/or NGO, PVO interest and willingness to cooperate?
4. Is there an existing mechanism (institutional relationship) for initiating conservation programs and will the project or activity tie in with existing programs?
5. Will the project maximize the amount of money that actually gets into the field by maximizing matching funds through indigenous NGOs and US counterparts and by minimizing overhead costs?
6. Will the activity relate effectively to the economic development objectives of the country and to an increase in public understanding?
7. Is the project financially and institutionally sustainable?

Ecological Criteria:

1. What is the degree of human threat to species and habitat richness, and the intrinsic vulnerability of the species and habitat in the area, i.e. particularly fragile ecosystems?
2. What is the level of species endemism and habitat richness within the country or target area?
3. How important is the habitat for maintaining species diversity in other regions, i.e. seasonal habitats serving as breeding sites for migratory species?
4. How important is the natural ecosystem to the human needs of a given country?
5. Is the project sustainable?
6. Is the distribution of projects balanced among a variety of ecosystems in different geographic areas?

Appendix 5

GUIDANCE FOR PREPARATION OF BACKGROUND ASSESSMENTS ON BIOLOGICAL DIVERSITY AND TROPICAL FORESTS FOR USE IN CDSSs OR OTHER COUNTRY PLANS

1. Summary

1987 Amendments to Sections 118 (Tropical Forests) and 119 (Biological Diversity) of the Foreign Assistance Act (FAA) require that CDSS or other country plans include an analysis of (A) the actions necessary in that country to conserve biological diversity and tropical forests and (B) the extent to which current or proposed A.I.D actions (if any exist in that country) meet those needs. In countries where necessary information for preparation of the CDSS or other country plan is not available, mission may elect to support a background assessment on tropical forests and biological diversity. This cable provides guidance and a potential model for conducting such a background assessment.

* * *

8. Illustrative Scope of Work

The following recommended outline for the background assessment focuses on the gathering of existing data and information to review the status on biological diversity and tropical forest conservation in host countries. The background assessment should identify needs and priorities for future biological diversity and tropical forest

Excerpts from the Department of State cable to all US A.I.D. missions on guidance for the preparation of background assessments on biological diversity and tropical forests for use in CDSSs or other country plans, dated February 3, 1988.

conservation actions by A.I.D., other development assistance donors, the host-country government, and the nongovernmental conservation community. The identification of needs and priorities should be as comprehensive as possible, keeping in mind that the agency is not committed to meeting all of the needs identified.

Again, it is emphasized that this illustrative scope of work is intended only as a suggestive model to help the mission identify the type of information that should be gathered and analyzed if possible.

A. Introduction

The biological diversity and tropical forest conservation assessment should describe the host country's biological resources, evaluate their status, identify pressures affecting those resources, and propose cost-effective and implementable actions which can be taken to assure the sustainable use of those resources. (Experience has shown that an effective way to conduct the biodiversity/tropical forestry assessment is, in the first phase, to collect relevant background information and reports. This information is most useful if it is summarized and available before the arrival of the assessment team. AID/W assistance identified in paragraph 7 can be used in this preliminary phase). The assessment should include parenthetical references to the sources of all information and a bibliography.

B. Outline

The scope of work for the biological diversity and tropical forest assessment for each country should include, but not be limited to, items identified in the outline provided below. While all of the information outlined below would be desirable, it is understood that missions may need to modify the outline in response to actual information available and institutional structure in host countries, and may wish to update it in the future.

Title Page
Executive Summary
Table of Contents
List of Appendices

- A. Introduction
- B. Legislative and institutional structure affecting biological resources
 - (1.) Government of host country
 - (2.) Nongovernmental organizations
 - (3.) International organizations
- C. Status and management of protected areas
- D. Status and protection of endangered species
- E. Conservation outside of protected areas
 - (1.) Managed natural systems
 - (2.) Impacts of development projects
 - (3.) Ex-situ conservation (e.g. zoos, seed banks)
- F. Conservation of economically important species and germplasm (including land races and wild relatives of agriculturally important crops and livestock)
- G. Major issues in biological diversity and forest conservation
- H. Recommendations and proposed actions
- I. Appendices
 - (1.) Bibliography
 - (2.) Biodata sketch of team members
 - (3.) List of persons contacted
 - (4.) Other appendices as appropriate

9. Details for Specific Sections of the Above Outline

A. Introduction

This section of the assessment will provide an overview of the information available and used in the assessment. It should identify significant gaps in information on the status and management of biological diversity and tropical forest resources in the host country.

B. Legislative and institutional structure

The background assessment should include a review of the current legislative institutional structure for the management of biological diversity and tropical forests. This review should include a description of major

organizations, both public and private, which have a role in this process.

(1.) Host-country government

The background assessment should include a review of the legislative basis, both national and local, for the protection and management of biological resources, including tropical forests, in the host country. This should include a review of international treaties and agreements which have been ratified by HCG (CITES, Ramsar, etc.) and the effectiveness of national implementation. A description should be provided of the institutions responsible for biological diversity and tropical forest issues, and management of all natural resources, within the HCG. It should assess the interest and commitment of the government to the conservation of biological diversity and tropical forests, and summarize HCG funding directed toward these issues. Note whether environmental profiles or national conservation strategies have been produced or are currently underway.

(2.) Nongovernmental organizations

This section should include a description of major organizations, both public and private, which have a role in conserving biological diversity and tropical forests and the levels of funding they contribute toward this issue.

(3.) AID, other donors, and international organizations

This section should include a description of other donors and major international organizations, both indigenous and external, which have a role in conserving biological diversity (including tropical forests) and the levels of funding they receive or contribute toward this issue. Their relationship with the government, membership, and principal programs should be identified.

C. Status and management of protected areas

This section should include an inventory of declared and proposed national parks, wildlife refuges, forest reserves, sanctuaries, hunting preserves, and other protected areas. The government agency or nongovernmental organization controlling each of the types of protected area should be identified. A country map with the location of all existing and proposed protected areas would be useful. An assessment should be made of the effectiveness of these areas in protecting plant and animal resources, and of

their importance to the host country's economy (e.g. for providing tourist opportunities or for protecting important watersheds). An analysis of the management effectiveness in these areas should be included.

D. Status and protection of endangered species

This section should include an inventory of rare and endangered species found in the host country and its territorial waters. It should identify their critical habitats and evaluate pressures on these habitats. It should review efforts which have been adopted for protection of these species and their habitats and assess their effectiveness.

E. Conservation outside of protected areas

This section should include a description of conservation activities in the host country which are being undertaken outside designated protected areas. This should include, but not be limited to, review of the following issues:

(1.) Managed natural ecosystems

This section should include a description of the major ecosystems of the host country and an analysis of their present conservation status. A country map (to the same scale as the protected area map) of the natural vegetation or habitat types would be useful. The text should review the status of managed natural ecosystems including but not limited to:

- Forest resources
- Rangeland resources
- Coastal and marine resources
- Wetlands
- Agricultural systems

The text should include a discussion of the economic, ecological, and social importance of these ecosystems to the host country. It should address their role in the regulation of erosion, management of water flow, and the maintenance of productive soils. The assessment should place special emphasis on the review of the forest resources and wetlands of the host country and describe their status and current threats. The relationship between land ownership patterns and effective conservation should be addressed.

(2.) Impacts of development projects

The text should include a review, by major ecosystems, of the impacts of internationally and locally funded major development projects on biological diversity and tropical forest resources. The text should review the regulatory framework concerning the implementation of development projects as they affect biological diversity, including tropical forests. The text should specify the environmental review and permitting requirements of the host-country government as they concern major projects.

(3.) Ex-situ conservation

This subsection should provide a description of ex-situ species conservation efforts being undertaken and/or planned in the host country. It should review the programs of natural history museums, herbariums, botanical gardens, zoos, and captive breeding programs and include a summary of any existing conservation data bases.

F. Conservation of economically important species and germplasm

This section should provide a description of the activities being undertaken in the host country for the conservation of economically important species and germplasm. It should review the status of gene banks for crop and livestock species, native seed collection, and activities being undertaken to support the sustained production of commercially important wild plant and animal species (e.g. for forestry production, hunting, fishing or commercial trade), and in-situ conservation of land races and wild relatives of important crops.

G. Major issues in biological diversity and tropical forest conservation

This section of the assessment should provide a summary of the major issues requiring attention in order to improve the conservation of biological diversity and forest resources. The present and future requirements for the development of local institutions and training, both government and nongovernmental, should be addressed. Issues concerning the management of protected areas should be reviewed. Special attention should be given to the problems of assuring adequate protection of wetlands, coastal, and marine environments (e.g. do existing protected areas encompass most significant biological resources?). An

attempt should be made to prioritize issues needing most immediate attention.

H. Recommendations for proposed actions

This section should include a review of proposed actions to address issues concerning biological diversity and tropical forests which may be implemented, with support from AID, the HCG, international development organizations, and local and international non-governmental organizations. Recommendations should be identified with regard to their relative priority and length of implementation period. If available, proposed actions shall include a brief description of their objective and anticipated benefits. This shall include a concise analysis of cost (foreign and local currency), identification of the appropriate institution(s) for implementation, estimated implementation period, and outline requirements for institutional development and training to assure the sustainability of the proposed program. This section should also include the identification and assessment of the HCG and NGO institutional and education and training programs to preserve and augment biological diversity and tropical forests, especially where endangered species are apparent. The assessment will address program constraints, including the need to consider conditioning certain assistance upon HCG legislative or administrative action in order to officially designate and strengthen HCG commitments for protected areas, and forest conservation.

I. Appendices

The assessment should include, but not be limited to, the following appendices:

- (1.) Bibliography and a list of relevant government agencies and NGOs
- (2.) Biodata sketch of team members
- (3.) List of persons and institutions contacted

Other appendices may be added as appropriate to the objective of the biological diversity/tropical forest assessment.

Appendix 6

BIOLOGICAL DIVERSITY EARMARKED ACTIVITIES FOR FY 1987

Twenty-one biological diversity activities were funded in FY 1987 with the \$2.388 million Congressional earmark. Many of the activities are components of larger A.I.D. projects. The descriptions and information that follow were taken from the A.I.D. Biological Diversity Activities Database developed and maintained under contract by the International Institute for Environment and Development with the cooperation of the Office of International Affairs, Fish and Wildlife Service.

TITLE: NIGER DELTA WETLANDS CONSERVATION

COUNTRY (IES): MALI

PROJECT NUMBER: ----

A.I.D. FY 1987 OBLIGATION: \$150,000

LEAD AGENCY: INTERNATIONAL UNION FOR CONSERVATION OF NATURE
AND NATURAL RESOURCES

LEAD AGENCY CONTRIBUTION: \$150,000

OTHER COLLABORATORS: WORLD WILDLIFE FUND-US, THE GERMAN
FEDERAL MINISTRY FOR ECONOMIC
COOPERATION

PROJECT DESCRIPTION:

The Niger River Delta is one of the most important areas of human settlement in the African Sahel. While it is considered among the areas with the greatest development potential in the western Sahel, a breakdown in many traditional controls on resource use has resulted in serious biological resource degradation over the past decade. Fish populations, grasslands, and woodlands are all in serious states of decline as human population pressures and changes in resource use have coincided with extended drought.

The objective of this project is to improve the use and productivity of natural resources in the Niger Delta using ecologically suitable management techniques and local involvement. Activities include an appraisal of household use of various biological resources in the Cercle of Youvarou area, an inventory of and management plans for wetlands, and the development of management plans for specific woodland areas, focusing on the maintenance of habitat while producing sustained yields.

TITLE: RHINO CONSERVATION

COUNTRY (IES): KENYA

PROJECT NUMBER: ---

A.I.D. FY 1987 OBLIGATION: \$50,000

LEAD AGENCY: WORLD WILDLIFE FUND-US

LEAD AGENCY CONTRIBUTION: \$50,000

OTHER COLLABORATORS: NONE

PROJECT DESCRIPTION:

The World Wildlife Fund-US is working on the management and expansion of existing rhinoceros sanctuaries and the monitoring of rhino populations and trends in rhino habitat.

TITLE: WILDLIFE MANAGEMENT AT MWEKA COLLEGE

COUNTRY (IES): TANZANIA

PROJECT NUMBER: ---

A.I.D. FY 1987 OBLIGATION: \$150,000

LEAD AGENCY: AFRICAN WILDLIFE FOUNDATION

LEAD AGENCY CONTRIBUTION: \$150,000

OTHER COLLABORATORS: NONE

PROJECT DESCRIPTION:

One of the greatest problems facing conservation in the developing world is the shortage of trained wildlife and wildlands management personnel. In many areas, the local professional capacity to manage these resources is so limited that management positions have been filled by ex-patriots of developed nations.

This project provides professional training for Africans to manage their wildlife and wildlands. It has three major activities. First, a conservation/ extension program is being developed at Mweka College, with emphasis on the links between conservation and development. Second, the library at the college is being expanded with current technical materials on biological resource conservation. Third, basic classroom and lab equipment are being upgraded.

TITLE: MADAGASCAR WILDLANDS AND HUMAN NEEDS

COUNTRY (IES): MADAGASCAR

PROJECT NUMBER: 938-0268

A.I.D. FY 1987 OBLIGATION: \$200,000

LEAD AGENCY: WORLD WILDLIFE FUND-US

LEAD AGENCY CONTRIBUTION: NONE

OTHER COLLABORATORS: CATHOLIC RELIEF SERVICES

PROJECT DESCRIPTION:

The Madagascar Wildlands and Human Needs project is aimed at stopping agricultural encroachment in the Beza Mahafaly and the Andohahela national reserves. The goal is to generate support from the local people for the protection of the reserves by improving their farming techniques and by linking their well-being to the success of the protected areas.

Specific activities include a general inventory and vegetation map of southern Madagascar, conservation training for Malagasy nationals, and the improvement of agricultural and forestry extension services to local people living around the reserves.

TITLE: BIOLOGICAL DIVERSITY SMALL GRANTS PROGRAM

COUNTRY (IES): VARIOUS COUNTRIES IN THE NEAR EAST AND ASIA

PROJECT NUMBER: 398-0178

A.I.D. FY 1987 OBLIGATION: \$293,144

LEAD AGENCY: FISH AND WILDLIFE SERVICE

LEAD AGENCY CONTRIBUTION: \$110,000 (PLUS \$2.2 MILLION LOCAL CURRENCY FUNDS)

OTHER COLLABORATORS: VARIOUS

PROJECT DESCRIPTION:

In many developing countries, there is ample skill, knowledge, commitment, and enthusiasm to plan and implement conservation measures. Too often, however, these resources are not used to their best advantage because the funding, even of the most modest proportions, is not there. This project is intended to overcome that problem. The program produces two dividends. It not only supports discrete conservation projects to protect species and habitats throughout Asian and Near Eastern countries but also helps build the institutions that are so important to effective and continuing conservation in developing countries.

The program supports both research and conservation activities in several Asian and Near Eastern countries. Grant proposals are screened by a joint FWS/A.I.D. committee and funding is supplied by FWS, A.I.D., and other collaborators. The FWS Office of International Affairs coordinates the program and administers the grants. Among the activities supported in 1987 are: support to the Wildlife Institute of India for wildlife management curriculum development; a survey of endangered sea turtles and shore birds in the Philippines by the Asia Wetlands Bureau; support for nature conservation clubs in Pakistan; training support to the Royal Society for Conservation of Nature in Jordan; and support to the International Waterfowl Research Bureau to conduct a survey of migrating and wintering waterfowl and songbirds in the Middle East.

TITLE: RHINO/WATER BUFFALO INTERACTIONS WITH HUMANS

COUNTRY (IES): NEPAL

PROJECT NUMBER: 398-0178

A.I.D. FY 1987 OBLIGATION: \$75,000

LEAD AGENCY: WORLD WILDLIFE FUND-US

LEAD AGENCY CONTRIBUTION: NONE

OTHER COLLABORATORS: THE SMITHSONIAN INSTITUTION

PROJECT DESCRIPTION:

Inhabiting the grasslands and forests of the Terai belt that once stretched across the entire Himalayan foothills, the Greater One-Horned Rhinoceros is now found in only a few places where its habitat has not disappeared. One of these areas is the Royal Chitwan National Park in Nepal. Here, as in many parks and protected areas in the developing world, pressures for agricultural land and fuelwood are increasing. Local villagers need the fuelwood, fodder, and thatching grasses they find in the park. This extraction threatens critical rhino habitat. The situation is similar in the Kosi Tappu Reserve where the endangered Asiatic Wild Buffalo is found.

Work on this project includes census taking for rhinos and buffalo, a study of the carrying capacity of the parks for rhino and buffalo, and a study of the value of and demand for forest reserve products by the local people. Efforts are being instigated in the Chitwan area to promote alternative fuels and to establish fuelwood plantings for villagers currently using the park area as their main wood source. Rhino are also being relocated from Chitwan National Park, where the population may exceed carrying capacity, to Bardia National Park, where underutilized suitable habitat exists.

TITLE: BURMA CONSERVATION PROFESSIONAL TRAINING

COUNTRY (IES): BURMA

PROJECT NUMBER: 398-0178

A.I.D. FY 1987 OBLIGATION: \$50,000

LEAD AGENCY: US NATIONAL PARK SERVICE

LEAD AGENCY CONTRIBUTION: \$300,000 (in PL-480 FUNDS)

OTHER COLLABORATORS: WORLD WILDLIFE FUND-US

PROJECT DESCRIPTION:

With its capital-short economy, Burma has traditionally placed a high priority on resources that have significant foreign exchange earnings potential. Conservation, until recently, was not perceived as having this potential. The growth of nature and adventure tourism has changed that, and the country is seeking to improve the management of its wildlife and wildlands resources. Burma has more than 40 reserves and protected areas, some of which date to the 1920's.

The project is providing professional training for Burmese natural resource and wildlife managers. They are attending training courses in wildlife and park interpretation and management. A study tour of selected US national parks has been designed for mid-level managers. This assistance provides a large step in the development of a modern, sound parks and wildlife management program in Burma.

TITLE: INDIGENOUS NGO SUPPORT

COUNTRY (IES): INDONESIA

PROJECT NUMBER: 398-0178

A.I.D. FY 1987 OBLIGATION: \$54,000

LEAD AGENCY: WORLD WILDLIFE FUND-US

LEAD AGENCY CONTRIBUTION: \$32,000

OTHER COLLABORATORS: MANY INDIGENOUS NGOs

PROJECT DESCRIPTION:

Considered one of the five most biologically diverse countries in the world, Indonesia is second only to Brazil in its extent of tropical forest, and harbors nearly 40 percent of Asia's tropical forest. Indonesia's rich natural resource base is currently threatened by agricultural encroachment, logging, mining, and oil exploration. But Indonesian conservation capabilities are also developing. Over the past decade, the number of environmental nongovernmental organizations has grown dramatically; today, the country has nearly 1,000 NGOs, local universities, and study centers involved in environmental matters.

Working through the World Wildlife Fund-US, this program is identifying NGOs that are capable of implementing biological diversity conservation activities. The project is designed to strengthen the Indonesian environmental movement by helping indigenous NGOs, universities, and environmental study centers implement a comprehensive conservation strategy. Approximately five Indonesian NGOs are being selected for institutional strengthening under a second phase with additional funding to be initiated next year.

TITLE: PHILIPPINES BIOLOGICAL DIVERSITY SURVEY
AND ACTION PLAN

COUNTRY (IES): PHILIPPINES

PROJECT NUMBER: 398-0178

A.I.D. FY 1987 OBLIGATION: \$78,000

LEAD AGENCY: INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND
DEVELOPMENT

LEAD AGENCY CONTRIBUTION: \$13,000

OTHER COLLABORATORS: THE HARIBON FOUNDATION, WORLD WILDLIFE
FUND-US, INTERNATIONAL UNION FOR
CONSERVATION OF NATURE AND NATURAL
RESOURCES

PROJECT DESCRIPTION:

The Philippine archipelago is characterized by an extraordinary diversity of life forms. Two of the world's most diverse ecosystems types, lowland dipterocarp forests and coral reefs, are found there. Yet information on the species and ecosystems in the Philippines is scattered and incomplete. At the same time, these natural areas are under great pressure to generate economic goods and services.

The goal of this project is to provide a comprehensive overview of the country's biological diversity and the threats to those resources, information that can then be used to formulate an action plan to most effectively conserve biological diversity. The project has two major components. The first is a scientific survey of biological resources, using existing sources of information, an assessment of the threats to those resources, and an analysis of socioeconomic and institutional issues that must be addressed if conservation measures are to be effective. This Biological Diversity Survey and Status Report will then serve as the basis for the second component, the formulation of an Action Plan to Conserve Biological Diversity in the Philippines. The plan is intended to serve as a guide for future conservation investments by the Philippine government, multilateral and bilateral donors, and the international conservation and development community.

TITLE: THAILAND BIODIVERSITY GRANTS

COUNTRY (IES): THAILAND

PROJECT NUMBER: 398-0178

A.I.D. FY 1987 OBLIGATION: \$60,856

LEAD AGENCY: WORLD WILDLIFE FUND-US

LEAD AGENCY CONTRIBUTION: \$60,000

OTHER COLLABORATORS: WILDLIFE FUND THAILAND, US
NATIONAL PARK SERVICE

PROJECT DESCRIPTION:

Thailand is the third largest country in Southeast Asia and has a wide range of vegetation and a great diversity of life forms. Thailand's natural heritage is, nevertheless, rapidly disappearing. Four projects funded under this activity are helping to address conservation needs through education, professional training, and the development of a management plan for endangered sea turtle species.

Two activities are intended to promote an expanded awareness of the value of Thailand's natural heritage. One supports production of three public service announcements for broadcast on Thai television stations that describe the uniqueness and diversity of Thailand's biological resources. Another supports the production of an illustrated book on the endangered and threatened flora and fauna of Thailand and their habitats. It will be written in simple, non-academic language and should reach a wide audience.

To promote an increase in the professional capacity to manage Thailand's expanded national parks system, several managers have participated in an extensive tour of US national parks. They also attended the 4th World Wilderness Congress in Denver, Colorado, during their visit.

Four endangered species of sea turtles nest along the Thai coastline. Poaching and egg collection, despite legal protection, still threaten turtle survival. Under this project, villagers living near nesting sites are being trained to manage nesting reserves, conduct anti-poaching patrols, and assist with resource management.

TITLE: ALTERNATIVES TO RHINOCEROS-HORN DAGGER HANDLES

COUNTRY (IES): YEMEN

PROJECT NUMBER: 398-0178

A.I.D. FY 1987 OBLIGATION: \$7,000

LEAD AGENCY: WORLD WILDLIFE FUND-US

LEAD AGENCY CONTRIBUTION: \$7,000

OTHER COLLABORATORS: NONE

PROJECT DESCRIPTION:

The leading cause of mortality for Africa's critically endangered black rhino is poaching. Despite legal protection and law enforcement efforts, poachers continue to stalk the rhino because of the high prices offered for rhino horn on the black market. The leading demand for black rhino horn is its highly esteemed value in Yemen as handles for traditional daggers. This study is looking at the possibilities of finding alternatives to rhino-horn dagger handles that will be acceptable to Yemenis.

TITLE: HOL CHAN NATIONAL MARINE PARK

COUNTRY (IES): BELIZE

PROJECT NUMBER: 598-0605

A.I.D. FY 1987 OBLIGATION: \$60,000

LEAD AGENCY: WORLD WILDLIFE FUND-US

LEAD AGENCY CONTRIBUTION: NONE

OTHER COLLABORATORS: BELIZE AUDUBON SOCIETY, US CEDAM
INTERNATIONAL

PROJECT DESCRIPTION:

The most diverse and well-developed coral reefs in the Caribbean are found off the coast of Belize. Most of the catch by the country's commercial fishing fleet, including spiny lobster, conch, and shrimp, are dependent on these reefs. At the same time, the reefs have become the primary attraction in the country's developing tourist industry. Fortunately, the reefs and surrounding habitats have not yet suffered any considerable degradation. There is, however, little formal protection for some of the areas. To support commercial fishing and the growing tourist industry in Belize, protected marine areas need to be established.

This project is developing the first management plan for a marine park on the Belize Barrier Reef, the Hol Chan National Marine Park. The plan will lay out ways to protect mangrove, seagrass, and coral reef habitats while allowing low-impact tourism and fishing in buffer zones along one of the more accessible and species-rich sections of the reef.

TITLE: BOSCOA (CORCOVADO NATIONAL PARK BUFFER ZONE)

COUNTRY (IES): COSTA RICA

PROJECT NUMBER: 598-0605

A.I.D 1987 OBLIGATION: \$75,000 (PLUS \$81,000 LOCAL FUNDS)

LEAD AGENCY: THE CONSERVATION FOUNDATION/WORLD WILDLIFE
FUND-US

LEAD AGENCY CONTRIBUTION: \$100,000

OTHER COLLABORATORS: THE NEOTROPICA FOUNDATION,
THE GOVERNMENT OF COSTA RICA

PROJECT DESCRIPTION:

Costa Rica has set aside 10% of its land area as national parks and has placed some form of protection on nearly 15% more. These figures are among the highest in the world. Yet such designations have little meaning if the protected areas are not actually protected and the lands surrounding them are not managed effectively.

Corcovado National Park is the focus of efforts by the Conservation Foundation to stabilize land use in surrounding forest areas to minimize encroachment. To do this, the Conservation Foundation and the Neotropica Foundation are collaborating with the residents of buffer zones to develop forestry activities that are economically viable over the long term. Rancho Quemado, a community located on the fringe of the park, has been selected for field implementation activities. Work with local residents includes land capability analysis, natural forest management techniques, forest products development, credit access and small grants for demonstration activities, agroforestry extension, and conservation education.

TITLE: HAITI NATIONAL MARINE PARK

COUNTRY (IES): HAITI

PROJECT NUMBER: 598-0605

A.I.D FY 1987 OBLIGATION: \$65,000

LEAD AGENCY: WORLD WILDLIFE FUND-US

LEAD AGENCY CONTRIBUTION: \$65,000

OTHER COLLABORATORS: THE GOVERNMENT OF HAITI

PROJECT DESCRIPTION:

The World Wildlife Fund-US and the Haiti Department of Tourism will work together to support the establishment and management of a National Marine Park in Les Arcadins Archipelago. The park has a high tourist potential and its establishment could help replenish the over-exploited local fishing industry.

TITLE: BOTANICAL SURVEY OF EASTERN ECUADOR

COUNTRY (IES): ECUADOR

PROJECT NUMBER: 598-0605

A.I.D. FY 1987 OBLIGATION: \$100,000

LEAD AGENCY: NEW YORK BOTANICAL GARDEN

LEAD AGENCY CONTRIBUTION: \$100,000

OTHER COLLABORATORS: MISSOURI BOTANICAL GARDEN

PROJECT DESCRIPTION:

In the western reaches of the Amazon Basin, a project to strengthen the capacity of Ecuadoran foresters and botanists to manage their humid tropical forests is being undertaken by the New York Botanical Garden, the Missouri Botanical Garden, and Ecuadoran universities. The goal is to gain an understanding of the economic value of the plants in eastern Ecuador. An important aspect is training Ecuadoran botanists in the discipline of economic botany.

Plant collections are being made at sites representative of the different ecological zones and land-use patterns of eastern Ecuador. Once identified, selected plants are assessed for their potential uses and their possible roles in sustained management of the land. Living material from selected plants will be made available for distribution and evaluation. A database of forest tree species is also being compiled.

TITLE: YANACHAGA/CHEMILLEN NATIONAL PARK

COUNTRY (IES): PERU

PROJECT NUMBER: 598-0605

A.I.D. FY 1987 OBLIGATION: \$200,000

LEAD AGENCY: THE NATURE CONSERVANCY

LEAD AGENCY CONTRIBUTION: \$200,000

OTHER COLLABORATORS: LA MOLINA UNIVERSITY

PROJECT DESCRIPTION:

The conservation of biological diversity and cultural diversity can be mutually reinforcing activities. This is the case in the Yanachaga/Chemillen National Park in Peru. In this project, a park area is being established and developed while protected buffer zones around the park will permit local Indians to continue their traditional way of life.

Designating the park and developing the area for recreation and tourism will protect mountain and valley ecosystems in the Rio Palcazu watershed of the rugged Yanachaga Range. The Central Selva Forest Reserves surrounding the park will be free to be used by the Amuesha Indians, who are also directly involved in the management of the park.

Included in the development plans are the construction of a visitor center and hiking trails, the training of Amuesha Indians as forestry police and park managers, and an inventory of the plant and animal species present in the area.

TITLE: A.I.D./PEACE CORPS BIOLOGICAL DIVERSITY INITIATIVE

COUNTRY (IES): VARIOUS

PROJECT NUMBER: 936-5519

A.I.D. FY 1987 OBLIGATION: \$150,000

LEAD AGENCY: PEACE CORPS

LEAD AGENCY CONTRIBUTION: NONE

OTHER COLLABORATORS: VARIOUS

PROJECT DESCRIPTION:

The Peace Corps has approximately 60 volunteers working with local governments and conservation organizations on parks, protected areas, and wildlife management. Volunteers work on wildlife research; floral and faunal inventories; and national park, wildlife refuge, and biosphere reserve planning and management.

This project provides additional pre-service and in-service training for both volunteers and their host-country counterparts. This support will make Peace Corps participation in conservation activities more effective and help build long-standing institutional relationships between the Peace Corps and host-country conservation organizations.

Project activities range from purchasing books and educational materials to conducting one-week wildlands protection workshops at a country or regional level. One such activity was a Wildlands Planning Workshop in Guatemala in January 1988 for 10 volunteers, 2 associate Peace Corps country directors, and 31 Guatemalan officials. During the workshop, ways were explored to obtain resources to address priority problems and a management strategy was developed for Atitlan National Park. In Morocco support was provided for a week-long Environmental and Wildlife Education workshop for 7 Peace Corps volunteers and their Moroccan counterparts.

TITLE: BIOLOGICAL DIVERSITY TECHNICAL SUPPORT

COUNTRY (IES): VARIOUS

PROJECT NUMBER: 936-5517

A.I.D. FY 1987 OBLIGATION: \$270,000

LEAD AGENCY: INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND
DEVELOPMENT

LEAD AGENCY CONTRIBUTION: NONE

OTHER COLLABORATORS: WORLD WILDLIFE FUND-US, THE NATURE
CONSERVANCY

PROJECT DESCRIPTION:

Recent amendments to the Foreign Assistance Act have made the conservation of biological diversity in developing countries a foreign policy objective of the United States. AID has been directed to lead US efforts. The Agency, even before the statutory requirements, realized that conservation is important to long-term sustainable economic development. The new emphasis on conservation, however, has grown faster than the Agency's capacity to meet legal requirements. This project is designed to help A.I.D. and its missions plan biological diversity conservation programs and strategies to meet statutory requirements and to stimulate more conservation initiatives from the mission level.

The Biological Diversity Technical Support Program is a collaborative effort of the International Institute for Environment and Development, the Nature Conservancy, and the World Wildlife Fund-US. It responds to mission requests for assistance in the preparation of background assessments on biological diversity for Country Development Strategy Statements and for the design of conservation project proposals. It also provides essential information and guidance requested by the Agency in developing its biological diversity conservation program.

TITLE: ECONOMIC INCENTIVES FOR BIOLOGICAL DIVERSITY
CONSERVATION I

COUNTRY (IES): VARIOUS

PROJECT NUMBER: 930-0091

A.I.D. FY 1987 OBLIGATION: \$50,000

LEAD AGENCY: INTERNATIONAL UNION FOR CONSERVATION
OF NATURE AND NATURAL RESOURCES

LEAD AGENCY CONTRIBUTION: \$50,000

OTHER COLLABORATORS:

PROJECT DESCRIPTION:

The goals of this study are: 1) to understand how government policies create incentives and disincentives for activities affecting biological diversity; 2) to define the role of economics in the major biodiversity issues relating to development, including deforestation, over-exploitation of species, reliance on single-crop agriculture, and loss of asset and amenity values; 3) to determine ways and means that economic incentives and disincentives can be used to promote activities that contribute to conserving biological diversity; and 4) to provide A.I.D. with a concise guide on how to build such socio-economic and fiscal measures into project design.

IUCN brought together an international group of economists, resource planners, protected area specialists, and species conservation specialists to present and discuss case studies in which economic incentives have led to practical, on-the-ground contributions to the preservation of biodiversity. The results of this workshop are being synthesized by IUCN into draft guidelines. A workshop in Washington, DC, gathered a group of 15 to 20 economists, resource planners, and A.I.D. staff to write a final set of guidelines, using the draft as a point of departure.

TITLE: TECHNIQUES FOR MONITORING AND EVALUATING TRENDS IN
BIOLOGICAL DIVERSITY

COUNTRY (IES): VARIOUS

PROJECT NUMBER: 930-0091

A.I.D. FY 1987 OBLIGATION: \$100,000

LEAD AGENCY: NATIONAL RESEARCH COUNCIL (BOARD ON BASIC
BIOLOGY)

LEAD AGENCY CONTRIBUTION: NONE

OTHER COLLABORATORS: NONE

PROJECT DESCRIPTION:

As A.I.D. expands its program to conserve biological diversity in tropical countries, the Agency needs guidelines and criteria for evaluating proposed projects and for monitoring projects in progress. The objective of this project is to provide A.I.D. with such guidelines and criteria.

In the study experts are looking for answers to such questions as: To what extent can changes in biological diversity be evaluated? How much time does it take for meaningful change to occur? What are the signals that nature provides that can be used to determine whether a project is effective? For example, does an increase in the number of species over a given area indicate an improvement in diversity? Which of many indicators can be used by managers to evaluate and plan on-the-ground activities?

The Board on Basic Biology of the National Research Council will convene a committee of seven members, organize a workshop of experts, and prepare a report based on the workshop. The workshop and report are intended to help the Agency plan a monitoring system.

TITLE: BIOLOGICAL DIVERSITY CONSULTATIVE GROUP

COUNTRY (IES): VARIOUS

PROJECT NUMBER: 936-5550

A.I.D. FY 1987 OBLIGATION: \$150,000

LEAD AGENCY: BIOLOGICAL DIVERSITY CONSULTATIVE GROUP

LEAD AGENCY CONTRIBUTION: \$50,000 (FORD FOUNDATION)

OTHER COLLABORATORS: VARIOUS PRIVATE FOUNDATIONS

PROJECT DESCRIPTION:

Resources available to assist developing countries to conserve their biological heritage are limited. Given the budgetary realities facing many bilateral and other international donor agencies, increasing these resources presents a formidable challenge. An important source of funding is the private sector, and foremost among private funding constituencies is the US foundation community. While a number of prominent foundations fund international conservation activities, there is a perceived need among them for collaboration, cooperative strategies, and information sharing to increase the impact of their efforts. A.I.D. has served as a catalyst in this regard by funding a secretariat for the Biological Diversity Consultative Group.

The Secretariat, in the person of Ted Smith, works toward its objectives by organizing meetings of the Group's members, which include the Ford Foundation, the C.S. Fund, the W. Alton Jones Foundation, the Geraldine R. Dodge Foundation, the Tinker Foundation, the John D. and Catherine T. MacArthur Foundation, the Jessie Smith Noyes Foundation, Pew Charitable Trusts, the Rockefeller Foundation, the Rockefeller Brothers Fund, and A.I.D. Activities include sharing information among members, identifying priority concerns, identifying programs in developing countries that merit support, and developing information on nongovernmental sources of funds. Plans are underway to expand the group's membership.