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ENVIRONMENT AND NATURAL RESOURCES STRATEGY

FOR CENTRAL AMERICA

Bureau for Latin America and the Caribbean

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PREFACE

This Strategy was prepared for the Bureau for Latin America and the Caribbean of AID by ROCAP, the Regional office for Central America Programs. Following a review by the Development Assistance Executive Committee on January 17, 1989, the Acting Assistant Administrator approved the Strategy with certain clarifications as reported in Department of State cable 49654 dated February 16, 1989.

This Strategy provides specific guidelines against which all environment and natural resource activities financed by AID in Central America will be planned, justified to Congress, and implemented.

ENVIRONMENTAL AND NATURAL RESOURCE MANAGEMENT
IN CENTRAL AMERICA:
A STRATEGY FOR A.I.D. ASSISTANCE

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SUMMARY

Guidance for the following Strategy Statement for Environmental and Natural Resource Management in Central America comes from three major sources;

- Recommendations of the Kissinger Bi-Partisan Commission study which keyed the importance of agricultural development throughout Central America.
- Conclusions of the landmark study by H. Jeffrey Leonard titled Natural Resources and Economic Development in Central America.
- The AID Policy Paper in Environmental and Natural Resources.

The following Strategy Statement for AID assistance in Central America projects, refines, and gives substance to the above blueprints; it attempts to establish boundaries and a rationale for AID's Central America efforts, and is intended as a framework for the design, justification and implementation of the future programs by AID in Central American natural resources management over a ten year period.

Estimates for AID funding over the projected decade of activities range from \$400 to \$650 million.

In full accord with AID's central E/NR policy objective of "helping developing countries to conserve and protect their environment and natural resources and to promote long term economic growth by managing exploited resources for sustainable yields", the activities proposed by this strategy all target one or more of the E/NR policy goals, i.e. sustainable production; maintenance of natural ecosystems and ecological processes; and meeting human needs by improving environmental quality.

The priority programs are limited to areas affecting soil, water, forests, flora and fauna, and do not address issues of oil, coal and minerals.

In a broader sense this proposed Strategy Statement takes its inspiration from the Leonard analysis mentioned above which warns that development plans for rural Central America will fail "unless they contain ambitious measures to replant the region's forests, protect its critical watersheds, rehabilitate its degraded lands, and help its desperately poor small farmers to earn a decent living by sustainable farming measures".

It is clear that the scope of contemplated actions, their complexity, built-in conflicts, and high and continuing cost, will demand extraordinary efforts at coordination and cross-corridor communications; will require unprecedented collaboration between public and private sectors, both in and outside the area.

Clearly, success in stemming the destruction of the natural resource base and in preserving fragile eco-systems will be determined by the participation and support of the people of Central America. Within the guidelines of this strategy, individual country strategies, stimulated and refined by bilateral Missions, will determine how AID funds are used.

Section I.

THE PROBLEM:

Central America is facing a dilemma, a dilemma that forces this generation to choose between economic growth today and economic growth for the children of tomorrow. The issue is destruction of the natural resource base, the very foundation of the predominantly agrarian societies that characterize Central America. Responsible management of renewable resources is a requisite for sustainable economic growth.

With expanding populations and rising, legitimate expectations for a better life, the scientific evidence is mounting that collective and individual income advances are garnered at the cost of reduced productivity of renewable resources; forests disappearing at a rapid rate with no action for replacement; plant and animal species pushed to extinction; productive soils lost through erosion and misuse; and coastal resources degraded or destroyed. These trends bring increased risk to the environment, people, and promising export industries. The environmental crisis is placed against a backdrop of rapid political change, undulating worldwide economic forces, and endemic poverty throughout the region.

Recent studies document the extent of the problem. A summary statement can best be given with excerpts from a recent book, "Natural Resources and Economic Development in Central America" by H. Jeffrey Leonard. (IIED)^{1/}

Three (factors)..... are interrelated and inseparable. Political instability undermines economic development; stagnating economic development in the face of rapid population growth adds to the numbers of people living in absolute poverty; extreme poverty coexisting alongside wealth and resources concentrated in the hands of a small percentage of the total population provides fertile ground for still further political chaos. The challenge for all countries of the region is to break out of this cycle of crisis and to forge a stable sociopolitical consensus conducive to long-term sustainable economic development that benefits all socioeconomic groups.
(IIED p.xv)

^{1/} (IIED) refers to "Natural Resources: Economic Development in Central America - A Regional Environmental Profile" by H. Jeffrey Leonard, International Institute for Environment and Development. Transaction Books, New Brunswick (USA) and Oxford (U.K.). 1987.

Stressing sound environmental programs -- sustainable exploitation of natural resources -- takes on a different coloration in societies that are still struggling to achieve some small measure of economic prosperity. Questions of "protection" quickly become questions of survival for much of the population.

Throughout Central America, the overwhelming evidence is that pressures from growing populations and expanding economies are causing people and governments to overexploit the natural resources at their disposal in order to satisfy immediate daily needs, increase employment opportunities, increase current revenues, and avoid difficult political decisions such as the redistribution of productive lands. As a consequence, depletion rates of forests, soils, fisheries, and other crucial resources far exceed renewal rates, and secondary problems such as soil erosion, sedimentation of hydroelectric dams and coastal harbors, and water pollution have reached critical levels in many parts of the region.

This "mining" of the environment facilitates the short-term subsistence efforts of both people and governments, but has actually contributed to the ongoing, long-term decreases in food production, per capita income, and physical well-being that are occurring in many parts of the Central American region during the 1980s. Evidence ... suggests that all of the nations of the region are experiencing direct financial losses and have already sacrificed substantial future economic opportunities as a result of previous careless management of vital renewable natural resources. Continued deterioration of these natural resource systems in the future is likely to further exacerbate problems of political and social instability, economic stagnation, and pervasive rural poverty. (IIED p.xvi)

The strong USG interest and commitment to support equitable growth in Central America, buttressed by a legislative mandate to support environmentally sound development, make AID a vitally interested party in resolving the dilemma of supporting both economic growth and responsible management of natural resources.

Resolution falls primarily on the people of Central America. Again, comments on the broad aspects of the problem and its setting are timely.

Central America is clearly a region undergoing profound change... Many development plans for the region stress the critical importance of expanding agricultural production -- especially for exports that will earn desperately needed foreign exchange. The majority of people in Central America already depend upon agriculture for their livelihood. These numbers are swollen by the region's rapid population growth (2.9 percent per annum). Manufacturing investment in the region has not increased significantly in recent years, and large increases in industrial employment are unlikely in the foreseeable future. (IIED p.xi)

Yet all the evidence suggests that the natural environment of the region has been deteriorating rapidly. Much of the best land in the region has undergone severe soil erosion. In El Salvador, more than 50 percent of all arable land is badly eroded. Much of the new land being cleared for farming (in Central America) is either very hilly, and therefore subject to erosion, or is in the moist, forested areas of the Caribbean Coast. In these lowland Caribbean areas, much of the soil is unsuited for sustained agriculture.

Less than 40 percent of Central America's original forest remains today, with two-thirds of the loss occurring since 1950. Rates of forest clearance have increased in every decade since the 1950s, and as much as 3 percent of the remaining forest continue to disappear each year. At this rate, Costa Rica, justly proud of its effort to conserve its rich biological heritage, may have little primary forest with commercial value outside of its national parks by the year 2000. Marine ecosystems are also under stress. Over the last decade, catches of the two commercially important species -- lobster and conch -- have dropped by 41 percent and 27 percent, respectively. This is due primarily to the double-edged sword of severe overexploitation of these near-shore species and increased destruction of valuable mangrove breeding habitats. (IIED p.xii)

These trends are similar for all of the Central American republics, regardless of their present or past political orientation.

This is not to say that the problems of Central America do not primarily demand political solutions. Rather, it is to say that any development plans that arise from these solutions will fail in rural areas unless they contain ambitious measures to replant the region's forest, protect its critical watersheds, rehabilitate its degraded lands, and help its desperately poor small farmers to earn a decent living by sustainable farming measures. (IIED p.xii)

Solutions lie in no particular domain: technical interventions with inappropriate policies cannot work; weak institutions with cloudy mandates and few trained staff are not effective, and; finally, people focussed on economic survival, or maintenance of traditional rights to public resources, cannot be expected to voluntarily impose a tax on themselves -- stop exploiting available resources -- without a sense that neighbors are also paying a fair share. No one person sets out to destroy the environment. Rather, the millions of individual decisions, each taken with a "small" objective, incrementally add to a destructive force.

Section II. CONSTRAINTS TO REMEDIAL ACTION:

The constraints to resolution of the conflict between economic development and responsible management of renewable resources are here grouped into four areas that encourage action: policy, institutions (public and private), cultural and social forces, and technology.

Policy:

Economic policies, regulations, and legal systems are the result of sovereign political decisions of the highest order. Policies are established to respond to national priorities as articulated by political forces: actions to stimulate economic growth may produce results that are incompatible with other national objectives such as protection of the environment. For example:

* Colonization programs designed to provide land to the landless, jobs to the unemployed, and economic growth often require trees to be felled before land titles are awarded. The result is massive and wasteful deforestation.

* To protect the national forests, some governments retain "title" to all trees. Begging the question of institutional capability to regulate such broad oversight responsibilities, such laws provide little incentive for private reforestation.

* Export incentives for traditional and non-traditional agricultural products stimulate not only exports but also increased use of pesticides by large and small farms. New industries rush ahead of the regulatory and educational capability of agencies to govern proper use of toxic chemicals.

While policy conflict is unavoidable in any society, politicians and private groups most often lack basic information on the explicit conflict among policies and rarely have "educated guesses" on the likely impact of past or proposed policies. In many cases, policies are determined by a powerful minority that looks to maintenance of social and economic power. Land use policies are especially important.

Poor utilization of arable land is a strong contributing factor to environmental degradation. The skewed ownership pattern of land limits access to its growing number of rural people who look to agriculture as their only opportunity for survival. As important, the livestock industry generally

utilizes extensive grazing technology in place of more intensive use of improved pastures. Thus increased production requires increased amounts of land. As demand increases, more land is required, stimulating further clearing of forests to meet local and export demand.

Policies for livestock expansion conflict with other policies to stimulate rural employment and other food production. Extensive use of good land for livestock, where the man-land ratio is very low, reduces rural employment and eliminates the opportunity for food and export crops. Prime agricultural land is often underutilized and farmers are forced to occupy fragile hillsides, tropical forests and coastal lands.

The constraint is usually not the absence of policies or laws. Environmental land management laws and policies do exist in Central America. The constraint is that some are not appropriate, are appropriate but are not enforced, or are avoided; or conflict, overlap, or act at cross-purpose with each other and other policies.

Attention to the political and legal framework which governs economic policies, regulation, enforcement, land use, economic incentives, and environmental protection is a required element of a successful strategy. Project interventions, program initiatives, and strategic long range planning cannot proceed effectively without supporting and compatible national policies and laws. Concerted policies, laws, and actions are required to attain the broad, dual objectives of sustained economic growth and the preservation of a viable natural resource heritage for future generations.

Institutional:

Institutional weaknesses contribute to ineffective management of renewable natural resources. In the public sector, priority for short-term economic gain places environmental concerns on the margin of day to day operations. Often, as in the case of land and water rights, including power generation, several public agencies may have assigned responsibilities in their charters but none has a clear mandate for action or regulation. Decisions become bogged down in bureaucratic struggles reflecting, in part, the views of powerful constituencies.

Incorporating environmental concerns into institutional operating guidelines and regulations requires, in addition, a higher degree of scientific sophistication in technical staff. No government agency in Central America is adequately staffed.

The result is that policy formulation and operational decisions are not made or made with an inadequate scientific base. And, as is often the case, financial constraints imposed by current economic struggles limit the ability of front line agencies to carry out assigned functions.

The private institutions -- banks, chambers of commerce, agricultural service industries and farms -- most often operate in a policy environment where the incentive is again to look at short-term gain as opposed to long-term considerations. Indeed, to operate otherwise would be financially irresponsible.

Non-profit environmental groups -- Central American and affiliates of international groups -- have established a toe-hold in many Central American countries but their influence on public opinion and government policies is low and their financial base weak.^{1/} Their voices, speaking for the common welfare of all citizens, present and future, do not carry to the far corners of the body politic.

The institutional framework, as it exists today in Central America, cannot create and regulate sound environment programs, public or private, without change. The weaknesses of public and private institutions are a formidable constraint.

Cultural and Social Forces:

The group that has the largest impact on the environment are the thousands of households throughout the region that struggle to make a living, the majority from agrarian pursuits. They represent the true action agents in the front line of economic development and environmental programs. With economic survival foremost in many minds, they represent not only the potential for economic prosperity but also a major barrier for sound environmental programs.

Economic advances and population pressures have weakened traditional agrarian systems which evolved over the centuries and were compatible with the natural environment. Slash and burn agriculture was part of a life cycle and traditional

^{1/} Details on public and private institutions are provided in Buckley-Ess, J. (ed.), "A Directory of Natural Resources Management Organizations in Latin America and the Caribbean." Partners of the Americas/Tinker Foundation.

instructions -- burn periods, fallow periods, appropriate crop mixes -- have given way to pressures for more intensive forms of agricultural production. A strategy of "one with nature", common to many traditional societies around the world, is replaced with attempted dominance of nature. Lessons from around the world that dominance can lead to destruction is only now being disseminated in Central America.

Urban residents are further removed from nature although their demands for electricity, fuelwood, timber, sewage disposal, and clean water impact and depend directly on the environment. The connection between pure water coming from the tap in an urban dwelling and a protected watershed is still far from the minds of most people.

If the households and farms of Central America continue current demands on the natural resource base -- directly through agricultural production and extraction of timber resources and indirectly for water, electricity, and roads -- there is little hope to stem the rate of environmental destruction now evident. There is a basic requirement to change people's behavior in how they interact with nature. Building national mores of respect for nature is difficult anywhere: lack of such common consciousness is a formidable barrier to rational policies, strong and effective institutions, and modified human behavior.

Reducing this barrier is a formidable task and requires innovations and concerted efforts to transfer suitable technology, create environmental education programs, and build a political consensus to support long-term efforts to protect the natural resource base, household by household, community by community, and nation by nation.

Technology:

There are two sides to environmental technology issues. The first focuses on the negative side of new technology that increases productivity in the short term but has serious "downstream" effects. Much of the destruction in evidence comes from adoption of foreign technologies without accompanying remedial steps, which may be available, to erase or limit environmental damage. Use of pesticides is the most common example.

Use of appropriate technology to reduce the impact of human exploitation on natural resources is the other important dimension of technology issues. Terraces to reduce runoff, contour and infiltration ditches, mulching, rock walls, tree

planting (for fuelwood, as well), gully plugs and grasses for watershed protection are examples of technological interventions to limit the destructive effects of farming and pasture development.

Technological constraints -- the lack of knowledge and tools -- are not now serious barriers to remedial action in environmental programs. There are examples within Central America and from other sites, of technological "fixes" that have been used to counter environmental destruction. Likewise, production technologies are available that mitigate or eliminate the side effects on the environment, technologies that range from tree cutting to land preparation.

The problem facing Central America is that these technologies have not had wide enough application to gauge suitability to local conditions nor compatibility with the social and cultural environment. Likewise, the financial incentives for adoption of these technologies may not be present. Adoption is far below what is needed to stem or reverse the destruction of the environment.

The technological constraint is not compelling in the immediate future. But the development and modification of sustainable means to produce more while maintaining the natural resource base will require continuing research and development. A strong scientific base that requires long term support for research and education programs is a critical key for the long term, seeking solutions through natural and social sciences research.

The four constraints -- policy, institutions, cultural and social forces, and technology -- collectively limit the scope of action to protect the natural resource base of Central America. They intertwine at many levels, reinforce each other, limiting success of single focused efforts. AID supported programs must address, either directly or through a set of interrelated actions, all four constraints.

Section III. A.I.D. PRIORITY AREAS:

The trends show that environmental problems are quickly worsening and that remedial action is required. The more degradation advances, the more costly and difficult the reversal. Many economic gains achieved in the region are threatened by environmental degradation and the mismanagement of natural resources. The rural poor and the disadvantaged segments of society who most depend on natural resources will be hit the hardest.

The strategic goal is:

to produce, with the citizens of Central American countries, the conditions for sustained exploitation of natural resources in a manner that minimizes the damage to the environment, protects bio-diversity, and provides the means for equitable and sustainable economic growth.

The broader dimensions of the problem can be addressed by AID, especially during the early stages, through focussed attention on a limited number of critical areas. An understanding of each country's natural resource potential and limitations must be a part of programs leading to increased agricultural production and improved rural living conditions. Remaining natural resources need to be managed productively over the long term if increased demands for food, fuel and other basic necessities are to be met. Consequently, AID assistance will concentrate in the following five program areas.

A. Sustainable Agriculture:

Objective:

Encourage farmers to apply practices that are environmentally sound and that contribute to the sustainability of agriculture.

Rationale:

Destructive farming and ranching practices must be halted if agricultural productivity is to be maintained. Increased production at the expense of soil degradation and contamination is not sustainable. The unequal distribution of land in Central America has forced campesinos to farm and graze steep hillsides. Permanent hillside farming and overgrazing destroy the soil. Soil and water conservation are an indispensable part of sustainable practices but benefits of soil conservation often are not discernible until years later, discouraging adoption. Animal husbandry has concentrated on animal nutrition and breeding, largely ignoring improved pasture and range management.

The integration of trees into farming practices, especially as living fences, shade over crops and pastures, windbreaks, forage, woodlots and erosion cover contributes directly to the sustainability of agriculture. The production of wood on farms also reduces the pressure on the natural forest. As natural forests disappear, planted trees must increasingly cover the demand.

Agriculture's increasing use of agro-chemicals is rapidly approaching a critical stage in the region. There is an urgent need for developing effective national capabilities in pesticide management leading to minimal use. The adoption of sound pesticide management policies and programs should achieve relatively rapid results in checking some aspects of current pesticide misuse trends, particularly those leading to health and environmental contamination problems. However, it is only through the adoption of economically and environmentally sound pest control practices (Integrated Pest Management) that a lasting solution to pesticide misuse will be made possible. Excessive or illegal pesticide residues in non-traditional export crops, which threaten that incipient industry, introduce an additional urgency that must be dealt with immediately.

Actions needed:

The development, dissemination and integration of technologies that lead to the use of land in accordance with its ability to sustain that use are required. Examples of specific practices considered important are those that incorporate trees, minimize pesticide contamination, support the proper (minimal) use of pesticides, and promote soil conservation.

Soil conservation: Farmers and ranchers will adopt soil and water conservation practices when compatible with the farming and grazing system and when they are convinced of the benefits. These two seemingly simple conditions require considerable effort in the design of techniques, especially to reach large numbers of people. In the last few years, especially in Honduras, Guatemala and El Salvador, several dozen projects have speeded the evolution of effective approaches. In general, it has been learned that soil conservation must be integrated into an extension package that leads to higher productivity, that carefully formulated material incentives for farmers and ranchers are usually needed at the beginning, and that commitments of ten years or more are required if results are to endure.

Farm based tree cropping: Stimulating thousands of farmers throughout the region to plant trees on the scale needed requires massive extension activities coupled with efficient

markets and incentives to turn tree cropping into a financially viable activity. The extension and delivery systems are usually best integrated with agricultural programs, rural development schemes, watershed projects and other efforts that cover a variety of farming practices. Non-government organizations are well suited for these tasks.

Design of effective, equitable incentives to grow multipurpose trees is required, and efficient markets offering better prices are key elements.

AID assistance will be directed at geographically defined projects that motivate farmers to plant and manage trees on their own land. Using extension and incentive schemes designed to take into account local social and economic realities, these projects will encourage farmers to consider trees as another crop. Guiding principles for AID assistance will be the use of community based nurseries, the integration of trees with agricultural practices and the use of agricultural extension services. This extension effort will be based on the results of ongoing silvicultural and socio-economic research.

As the demand for planting trees accelerates in Central America, two new constraints will be addressed: supply of good seeds and more efficient use of new species and small dimension logs.

Pest and pesticide management: To mitigate the negative economic, health, and environmental consequences of pesticide misuse in Central America, appropriate pest and pesticide management programs and policies will be established in the countries, through the following actions:

Public and private sector institutions in the general area of crop protection as well as in pesticide regulation and management must be strengthened. Special attention will focus on the development, transfer and adoption of appropriate technology for food, cash, and export crops, according to country and regional priorities.

Training will be offered in the diverse areas of pest and pesticide management for national technical and administrative personnel dealing with crop production, protection, and marketing. Programs will be aimed at increasing the awareness of the general public regarding pesticide misuse.

Measuring pesticide residue in non-traditional export crops and domestic food crops will receive high priority to assure compliance for export certification and as a base to establish regulations.

Implementation:

The above practices can be designed into bilateral AID financed agricultural, rural development, and watershed projects. Both the public extension services as well as NGOs and private agricultural enterprises will be utilized as delivery systems for these techniques. Public institutions and local NGOs will be strengthened by bilateral USAIDs and encouraged to join forces with U.S. NGOs. The aim will be to institutionalize assistance for these practices in those government and private entities that deal with agricultural productivity. Food assistance and local currency offer means to finance judiciously designed incentives for farmers. ROCAP and other regional donors, working through regional institutions, will finance research, training, and technical assistance activities designed to complement national and bilateral efforts. AID centrally funded projects will provide specialized technical support in areas not available among local or regional experts.

Professional training in soil conservation, tree crop production, and pest/pesticide management will be provided through, among others, regional institutions such as CATIE, EAP (Zamorano), and EARTH. Training programs in these areas will be integrated into university and mid-level agricultural school curricula. Development of awareness programs for the general public, and activities designed to encourage the adoption of sound soil conservation, forestry, and pest/pesticide management policies will be carried out through bilateral efforts, in collaboration with regional programs.

Generation and refinement of tree crop and integrated pest management technologies will be carried out by CATIE, in close collaboration with national counterpart institutions and selected universities. In contrast, mechanical and vegetative soil conservation practices are well known and need little research now. Regional computerized management information systems for tree crops and pesticides will be established in support of national and bilateral programs. Transfer of IPM technology and pesticide management and regulation programs will be carried out by public institutions, in collaboration with universities and private firms. Activities specifically designed to deal with residue problems on non-traditional export crops will be best implemented through promotional programs for these crops, in collaboration with USDA and national and regional institutions having pesticide management and/or residue analysis capabilities. In each country, information on U.S. and European pesticide tolerances will be distributed and programs established to bring domestic pesticide use practices in line

with established guidelines abroad. Close collaboration with private firms -- buyers of product and venders of agro-chemicals -- is a critical requirement for success.

B. Production from Natural Forests:

Objective:

Assist institutions in the countries in the management of selected areas of existing natural forest with high productive potential, for the sustainable production of forest products, water and other environmental benefits.

Rationale:

Central America has considerable forest lands to produce sustained economic and ecological benefits. There is however, an urgent need to shift from the current tendency to "mine" these forests toward less wasteful utilization to slow down the alarming rate of degradation and disappearance. Increasing the value of these forests through sustained commercial use is the most effective means of assuring their continuity. Appropriate corrective actions are needed now; under the best of conditions reversal of trends will take years, time enough for more of Central America's forests to disappear.

Actions needed:

Slowing the current rate of forest destruction will require determined actions on a broad front. The most pragmatic strategy is to identify priority forest areas in each country and concentrate protection and management efforts on those areas. Specific targets will be the pine forests of Honduras and Guatemala, partly because of the relative simplicity of their management and utilization. Other forest areas of concentration will be those large blocks of hardwood production forests that form buffer zones around important wildlands in Costa Rica and Honduras.

Implementation:

AID assistance will be focused on management of priority areas which have the potential of supplying a large part of the region's demand for wood, as well as providing ecological benefits. Policies and mechanisms for control of forest cutting, sale and pricing of standing timber, and approval of forest management plans are the domain of the forest services of the respective countries. However, AID will channel assistance to NGOs to assist local groups to manage and utilize priority

forests and offer technical assistance to forest industries, encouraging them to reduce waste. The greatest stimulus to make forest industries more efficient is the assurance of a long-term supply of timber. NGOs can foment accord between forest owners and industry to meet the needs of both.

AID support for training in pine forest management will be concentrated at the forest technicians school in Honduras, ESNACIFOR, whereas training in broadleaf forest management will concentrate at CATIE. AID forestry projects will contract research on forest management, emphasizing secondary forests, with CATIE and selected universities.

C. Management of Wildlands and Protection of Biological Diversity:

Objective:

Support programs to consolidate and manage, on a sustainable basis, legally declared national parks and reserves.

Rationale:

It is increasingly accepted that wildlands, especially those that sustain bio-diversity and tropical forests, are part of the irreplaceable patrimony of all mankind and the responsibility for protection and management should be shared by all. The Foreign Assistance Act and the AID Policy Paper on Environment and Natural Resources are eloquent expressions of this shared responsibility.

The necessity and benefit of conserving certain lands in their undisturbed state are recognized in Central America. Each country has legally declared areas of national parks, wildlife refuges, biological reserves or other categories of wildland reserves where disturbance of natural conditions is minimal (not included here are certain categories of protected areas where commercial forest management or agricultural use are permitted, such as in some hydrologic and forest reserves). These protected wildlands provide such essential benefits as continuous flow of clean water; sites for recreation and tourism; coastal zone production and stability; and habitats for the diverse species of plants and animals.

Destruction of wildlands is largely irreversible. Many declared wildlands in Central America have been degraded or reduced in area because of incursions. Examples include the Corcovado National Park in Costa Rica, the La Tigra National Park outside Tegucigalpa, the Montecristo National Park in El

Salvador and the Altos de Campana and Volcán Barú National Parks in Panamá. Creation of new reserves is difficult. Once lands are exploited and infrastructure developed it is expensive for governments to acquire the land for conservation. For example, Costa Rica is now seeking funds to buy private holdings to consolidate its national parks -- lands which could have been reserved at minimal cost a few years ago.

Wildlands that span national borders can contribute toward improved international relations. Examples of such international wildlands are the La Amistad Binational Park, the Trifinio Trinational Park and the Peace Park proposed between Costa Rica and Nicaragua. The second Central American Wildlands Management Meeting held in Guatemala in 1987 has launched a plan for coordinating wildland systems throughout Central America.

Actions Needed:

Decisions are needed concerning definition of desirable and feasible actions and limits for individual wildland systems including representative areas of the major ecotypes, irrespective of national boundaries. Although some adjustments may be needed in structuring the systems and defining appropriate categories of wildlands units, emphasis will be put on consolidating existing systems, and not on establishing new reserves. Practical plans for management of the identified wildlands will be prepared or updated. Critical for long-term success is acquiring funds, internal and external, to provide for recurrent operating costs of reserve management.

Development of management activities to conserve the wildlands, including those that span international boundaries is required. Where coastal reserves are part of larger reserves, special attention will be given to integrated coastal zone management. These include demarcation of boundaries; deployment and equipping of rangers; training of staff; purchase of inholdings; and construction of guard posts, trails and roads needed to protect the area.

Recognizing that the best means to control wildlands is through control of access, facilities and services to accommodate visitors are needed to protect the fragile ecosystems. Examples include visitor centers, nature trails, access trails and roads, guide services, and shelters. Together these attractions will encourage nature tourism, a growing source of foreign revenue in Costa Rica, and a means to broaden environmental awareness.

Wildlands are most effective and easier to conserve when they are surrounded by a buffer zone of restricted land use, such as commercial forest, indigenous peoples reserves, protective watersheds, and agroforestry areas. Success requires that the inhabitants of the buffer zones be part of the management plan of the neighboring wildlands. Local inhabitants can be employed as rangers, guides, workers and concessionaires. They will need special agricultural extension services, education in environmental matters, and assistance with community development.

When parks or reserves are placed in coastal areas, development of coastal resource management programs will be encouraged. These programs should be designed to address a few well-designed management questions in order to succeed. Key objectives of such programs would be to help develop procedures to address impacts of coastal development, strengthen local planning and management capabilities, conduct research to identify key resource management problems, and implement public education programs.

Implementation:

Overall responsibility for the management of wildlands is the domain of the park services and the forest services of the respective countries. Bilateral AID Missions and ROCAP will support and work closely with these institutions to achieve the wildlands and biological diversity objectives. Overall planning and the protective functions are best carried out by government agencies.

On the other hand, many actions can be effectively carried out by private institutions. AID will channel assistance through NGOs, both local and U.S. based. For instance, the preparation of management plans for specific wildlands can be contracted to NGOs working in conjunction with government agencies. AID will encourage international coordination of wildland activities and exchange of experience by means of the regional institutions and international conservation NGOs. ROCAP will continue to support CATIE to provide training in wildland planning.

The chronic problem of meeting recurrent costs has particularly severe consequences for wildlands because of the irreversible damage caused by even one year of inadequate protection. AID will encourage U.S. conservation NGOs to develop endowments; generated local currency could be used as well. Recent innovative mechanisms to swap international debt for local currency to be used for nature conservation will be examined. Where feasible AID will encourage U.S. NGOs to leverage their contributions through these debt swap arrangements.

D. Management of Critical Watersheds:

Objective:

Assist the countries to improve land use and manage water resources in those critical upland watersheds which are of high priority because of their downstream impacts on infrastructure, agriculture, water supply, and coastal areas.

Rationale:

Watershed degradation is a serious problem common to all the countries of the region. Watershed misuse leads to land and water degradation as well as other costs which threaten agriculture, potable water supplies, hydroelectric generation, irrigation, flood control, navigation, and tourism.

The most important demands for water in the region are for hydropower, municipal and rural water supplies and irrigation. Perhaps most striking is the impact of water on development through hydropower. Approximately 66% of the electrical energy currently produced in the region comes from hydro-power. Nonetheless, in 1981, the oil consumed by thermal power plants accounted for 20% of the region's \$1.0 billion oil import bill. Central American countries have been developing alternative energy sources; an estimated 80% of the total energy investment is in hydro-generation and from 1980 to 1990 about \$3.6 billion will be spent on hydroelectric projects. These investments are jeopardized through siltation of reservoirs, damage to structures and equipment, water shortage and other watershed problems.

Lack of quality water is limiting industrial and urban development and leading to human health problems. Even as new water projects are being completed, demand is exceeding supply in most urban centers.

Central American countries have ignored the protection of water supplies due to a lack of clarity as to which institutions are responsible for watershed protection and pollution abatement, and inadequate financial resources. The municipal and community watersheds targeted are generally small land units requiring modest amounts of resources to correct specific problems. Local entities tend to be highly motivated to undertake management of their watersheds once proper technical guidance and financial resources are available.

Also Central America's abundant, and potentially productive coastal zones are being seriously impacted in parts because of watershed degradation. Increased soil erosion and sediment loads downstream, reduced water quality, contamination from agrochemicals, coupled with the combined effects of overexploitation, habitat destruction, and lack of planning are causing serious deterioration of coastal environments. Mariculture activities are being threatened by deteriorating water quality and industrial and artisanal fisheries are being undermined by overfishing. Mangroves and seagrass beds vital as nurseries for many commercially valuable fish are being destroyed, and fragile coral reefs are dying due to siltation and pollution.

The degradation of these coastal areas is occurring at a time when many Central American governments are becoming more and more dependent on coastal production as a source of non-traditional exports, especially shrimp, conch, spiny lobster, etc., to bring in much needed foreign exchange. In addition the coastal zone contains much of the region's best agricultural lands and is home for a growing percentage of Central America's burgeoning population.

Actions Needed:

Immediate attention will be given to the several watershed projects already underway, examining each to determine what additional resources, if any, are required to facilitate implementation. Demonstration through successful projects, incorporating political support, institutional cooperation, and private action, is a vital step for marshalling host government and external support for expanded programs: continued support for development and refining of technical, planning, and scientific innovation is needed.

Implementation:

Watershed/water management institutions in Costa Rica, Panama, Honduras and Guatemala have been assisted through a CATIE regional watershed management project during the past five years and critical watersheds and priority management actions have been identified. This effort focuses management efforts on those priority catchments selected by national watershed advisory councils and water supply agencies.

For watersheds connected to major infrastructure projects, national institutions are the primary conduits. Assistance would be given to landowners, farmers and community development groups to carry out the needed conservation practices.

Identifying the lead institution to be charged with implementing management actions to solve the priority problems of the watershed (ie., flooding, dam siltation, accelerated soil erosion, etc.) will receive high priority.

Watershed protection to safeguard municipal and community water supplies will be carried out on a smaller scale by communities, assisted by the national water supply agencies. Two types of actions are needed: first, those that can be implemented by the communities directly or contracted by them with the help of the national water supply agency. This would include the construction of water storage and distribution structures, land purchase, fencing of critical areas, construction of infrastructure for guards, fire control, and monitoring of water quality and runoff.

Second are land management activities for farmers. These include soil conservation, protection of key catchment areas, woodlot management, reforestation and gully control. As municipalities do not have the means to support these activities, other organizations may need to be encouraged to cooperate in the selected community watersheds. Local currency can be used to finance technical assistance, vehicles and their operation, office space for technicians, and various equipment and supplies needed for extension.

A major focus will be on developing the means to meet recurring costs of watershed management. Policy measures that call for users to pay for the costs associated with the management and conservation of water supplies will be encouraged. Beneficiaries of water projects, (irrigation and hydropower) could be charged fees to cover the costs of watershed management.

Regional institutions will support the national efforts through training, planning, data management, information exchange, technical assistance and monitoring project implementation. ROCAP will continue to support CATIE as a regional center of watershed management expertise and also will provide financing to multinational commissions for the planning and management of international watersheds.

One of the key challenges for coastal resource management - protection of the resource base - will be met in part through implementation of watershed management programs. Protection of key watersheds will decrease sediment loads downstream and slow siltation rates in coastal areas. Management of coastal wildlands through establishment of reserves and buffer zones will provide protection for critically threatened, fragile coral

reefs, mangroves and seagrass beds. Environmental education will help increase the public's awareness of the importance of coastal resources, and develop a civic conscience promoting both their protection and sustainable use.

E. Policy Formulation, Institutional Strengthening and Environmental Education:

Objective:

Encourage the creation of a policy framework, effective institutions and public consciousness favorable to the sustained use and rational management of natural resources.

Rationale:

Implementation of a long-range strategy for sustainable use of natural resources requires the creation and acceptance of appropriate policies by the people of Central America. Building a public consciousness on the need for careful management of the resource base and then translating that consciousness into active policies and regulations is a sine qua non for success. Without this foundation, technical interventions and ad hoc regulatory actions by governments cannot meet the long term objectives.

The interaction of private behavior, public policy and institutional actions has to be addressed from several fronts. Understanding the relationship between population growth and environmental degradation is vital for establishing effective policies. There is no set sequence to follow: public policy provides guidelines on institutional and private actions; private action is dictated by custom, economic necessity and public policy; public policy is created from political, economic and cultural forces unequally held and wielded by social groups.

Actions Needed:

Policies that govern management of natural resources are often in conflict with policies to stimulate economic growth. Examination of the policy set is required to establish a foundation for change. This exercise includes:

- a. determination of the appropriateness of individual policies and the effectiveness of their implementation;
- b. analysis of cross conflict and reinforcement between policies;

- c. estimation of the trade-offs between policies to stimulate economic growth in the near-term and those designed to protect the natural resource base;
- d. evaluation of the regulatory process and its effectiveness on shaping public and private action.
- e. examination of "common property resources" where a perception holds that public lands represent a "pool" which each individual must exploit quickly in order to realize his "share".

The results of these steps will provide AID with the information necessary to shape policy dialogue and determine the nature and scope of AID support. They will also provide political leaders in the region with the information necessary for governmental action.

Public sector institutions, especially those in the natural resources domain, are increasingly strained to carry out a wide range of assigned responsibilities. Established to operate in a different era, they cannot take on the additional responsibilities of intensive programs in natural resource management without substantial changes. Several steps are required to increase the effectiveness of these institutions.

a. Clarification of mandates. Responsibility for implementation of public policy is confused by several ministerial and public sector agencies sharing responsibility with the result that action is blocked by bureaucratic wrangling and scattered resources and fragmented efforts. Examination of these conflicts and assignment of lead agency responsibility is required.

b. Limiting the scope of operations. Adding an aggressive natural resource management program to existing responsibilities of key public sector institutions will reduce even more the effectiveness of rural development agencies in the region. Additionally, any gains made in environmental programs would be short lived and dependent on continued outside support. The assigned scope of operations of public sector institutions has to be modified, reduced to those actions necessary to protect the public welfare and provide limited regulatory oversight. A concerted effort to build partnerships with private organizations -for profit and not for profit- is a critical element in building lean and effective public organizations.

c. Budgetary and Personnel Restrictions. Budget austerity dictated by fiscal measures to control public expenditures hit hard on programs that have little impact in the short-term. These are often the very programs that are vital to renewable resource programs. Even when finances are available, technically qualified staff are forced into administrative positions in order to compete for adequate salaries. Financial flexibility is key to providing the increasingly higher degree of sophistication required to meet the challenges presented by the multifaceted problems in each country. Building this competence will require a commitment to in-service training programs and augmentation of staff positions in key institutions.

d. Local and community institutions. Latin America is characterized by powerful central governments with little real authority passed to provincial or community governments. Impact of environmental degradation is first felt at the community level and any remedial program must incorporate local aspirations and resources. Community programs will be difficult to stimulate and sustain.

Voluntary private institutions have not had a prominent role in implementation of government policies to protect the environment. Recently, non-governmental organizations have established a foothold in the region, carrying a message of environmental concern. There is potential for these organizations to expand their action and develop indigenous counterparts, complementing public institutions in many program areas.

For-profit firms, defined to include also rural households who depend on exploitation of natural resources for their livelihood, are seen as recipients of proscriptive regulatory guidelines from governments and not as action agents to protect the environment. In most cases they are responding to signals from the market as shaped by economic policies that favor immediate economic gain over long term growth. The growing service industry - agro-chemicals sales, buyers and brokers - shapes business operations to current policy, foregoing concern over the long-term impact of operations on the environment.

Implementation:

Policy formulation and execution must be given prominence in AID program discussions and project designs, and fully integrated with efforts in the first four priority areas. This will include:

1. Policy activities which explicitly incorporate legal and economic analyses and establishes the basis for inclusion of ENR concerns in the bilateral policy dialogue with host country governments, to revise inappropriate natural resource laws and regulations governing land use rights and access/control over water, timber and other natural resources;
2. Institutional strengthening activities that allow for the analysis of data, formulation of policy, enforcement of laws, and dissemination of practices that contribute to sustainable use of natural resources; and
3. Programs which at all levels create awareness of the urgency for adopting the sustainable use of natural resources. Such efforts to increase public awareness of these issues are critical to improving the policy environment.

Private firms will be asked to play a more proactive role. For example, the proper use of agro-chemicals, especially in conjunction with export crops, requires action beyond policy and regulation. Public extension services cannot reach the thousands of households who use, or who will be using, chemicals which promise a high return but whose misuse is dangerous to humans (producers and consumers) and the environment. Additionally, sawmill purchases influence behavior of loggers. Regulation and manipulation through incentives of these private agents could add muscle to existing regulations.

An important agent for implementation will be private NGOs in the region in collaboration with research and educational institutions in the region. AID will support linkages with similar organizations from the United States (and worldwide, where appropriate) to provide technical, analytical and institutional expertise.

Environmental education programs will be developed to change people's collective and individual behavior that threatens the environment. Ranging from mass campaigns to supplementary material in formal education programs, the message will stress the importance of natural resource management for the ultimate public good; a sustainable resource base for continued economic prosperity.

Central America has a network of regional institutions that can play an expanded role in environmental and natural resource management programs. In spite of the diversity of ecosystems running along the isthmus, many of the problems are shared. CATIE, ICAITI, CABEI, and INCAE possess a body of institutional experience, information, and technical staff that

can be expanded to support policy improvements, and institutional and educational efforts by governments and private entities. Some program elements necessary to address critical problems span two decades (ICAITI in chemical analysis and testing), while others are more recent (watershed management in CATIE).

Section IV. A.I.D. ACTIONS:

Achievement of the strategic objective requires action on several fronts by AID. An intensified focus on environmental and natural resource management targets with host governments in the region cannot be carried out without change in current program focus and resource allocation. Implementation must draw on the strengths found in the United States and channel those strengths to critical program areas. The full range of diplomatic, technical, organizational, and financial resources of the United States is required to achieve the long-term objective of sustainable and equitable economic growth in a political environment that promises stability and opportunity for the citizens of the region.

Adoption of E/NR programs places AID on a dual track: programs directed at near term political and economic objectives and E/NR programs which take a long-term perspective. An aggressive program directed towards protection and maintenance of the natural resource base can produce unmanageable conflict with programs which emphasize near-term political and fiscal objectives. Explicit attention to the requirements of programs directed to the next century are critical for success.

a. Support for public vs. private action. Implementation of the strategy requires an intensified effort to engage NGOs in AID supported programs. Limits on public sector budgets alone call for strategies to enlist private action and funds to carry out programs. In many cases, sensitive negotiations between bilateral Missions and host governments will be required to scale back the historical role of public sector agencies to policy making and regulatory functions, relying more on NGOs, including community level organizations, for field implementation.

b. Measurement of expected economic return. Resource directed programs are characterized by long-term payoffs, often measured in decades rather than years. Forests are slow to regenerate and soil conservation programs yield their benefits to future generations. In some cases, implementation of this strategy will result in reduced economic growth where current financial return is based on "mining" natural resources.

For AID, the standard measures of economic viability --benefit-cost ratios and internal rates of return -- may not be appropriate and will, in many cases, produce a bias in favor of short-term gain, exactly the wrong measure for this strategy.

c. ESF and local currency generation. ESF programs are directed, by their nature, to short-term objectives and offer little opportunity to address the longer term objectives under consideration. However, the ESF policy dialogue can focus on E/NR policies and direct currency owned by host governments towards longer-term environmental objectives to support broad economic goals of increased employment, income generation and natural resource management.

d. Long-term commitment. The E/NR problems are long-standing and resolution requires a long-term approach. Program horizons stretch far into the future, and by engaging itself in this strategy, AID is making a commitment to long-term attention to the problems and sustained support for country programs.

e. AID staff resources. Technical staff in AID Missions are not sufficient for design and implementation of programs under this strategy. While many needs can be met through expanded regional staff, individual Missions require in-house experts to guide country programs. In-service training for AID staff can strengthen the capacity to design and manage these programs.

f. Environmental Impact Assessments. EIAs more often result in proscribed practices than proposing environment enhancing practices compatible with projects under consideration. To change this will require additional host country guidelines, policy reform and human resources. AID interventions in production programs, agricultural credit, or cooperative development, could be complemented, in some cases, by environmental education programs or more specific interventions consistent with the purpose of the project.

g. Monitoring for follow-up. Completed EIAs are mostly shelved and are not monitored to gauge compliance or changed conditions. While remedial action is the primary concern of such monitoring, the data collected would also feed needed research programs.

h. Information. AID requirements underscore the need for information centers on natural resource conservation and development. Institutions (including AID Missions) have little "memory", or find it difficult to access precise information needed for decision making. In order to provide information for the above activities and to make accessible the information which they generate, a means is needed to collect, store, retrieve and analyze natural resource information, on a regionally standardized basis.

i. Gender Issues. The role of women in natural resource utilization requires more focussed attention to gender considerations in execution of this strategy. This recognizes the critical roles played by women in the full range of decisions, ranging from policy formulation to forest exploitation to acculturation of children.

Within AID, responsibilities for execution must be clearly delineated. While overlapping and common programs are desirable to a degree, clear action statements will build a stronger USG program.

* AID bilateral Missions. Primary responsibility for policy dialogue and program execution rests with country Missions. Building the partnership with host governments clearly falls in the domain of this level of the AID organization. Likewise, tailoring environmental and natural resource management programs to local conditions is the responsibility of Mission staff. At the country level, donor coordination with specific programs can be best achieved by Mission interventions with host governments.

* ROCAP. The primary responsibility of ROCAP is to support bilateral environmental programs with a combination of regional institutional programs and direct technical support. In some areas where problems do not respect international boundaries, and where pilot or generic interventions are needed, ROCAP will take the lead in developing regional programs, in collaboration with country Missions. ROCAP will also provide a means to stimulate other donors to support programs in the region.

* LAC. In addition to providing broad program oversight, LAC bureau responsibilities focus on interagency coordination and management. Continued discussion with the U.S. Congress to develop the necessary legislative authority for program implementation is a key ingredient to successful execution of the strategy. High level donor coordination with bilateral and multilateral agencies can capture complementary resources for programs in the region. Additionally, USG coordination can be addressed and achieved at the Washington level.

Execution of this strategy requires AID to be the lead USG agency in marshalling and coordinating the programmatic and technical expertise found in the United States. Problems are far ranging and the organizational and technical competence developed in the United States constitute a clear comparative advantage for this type of initiative.

* Federal agencies such as the USDA (U.S. Forest Service, APHIS, Soil Conservation Service), EPA (with research and regulatory experience), FDA, and the Peace Corps (with a long tradition of community based programs and a current commitment to environmental targets), embody implementation and technical resources that can and will play a role in Central America.

* The United States can influence programs funded by multinational donor agencies through leadership in program areas and formal approvals where the U.S. has representation. Other developed nations often look to the U.S. for program specific opportunities for investment, building a coalition of interests in development programs. Often resources from other donors can support elements of programs that complement U.S. resources.

Section V. TARGETED ASSISTANCE LEVELS :

The collective effort of AID missions in Central America to address environmental and natural resource issues is at a respectable level. In Costa Rica an explicit natural resource strategy has been developed in collaboration with the host government. Development objectives in Honduras have led to a high level of funding for natural resource programs, especially in the forestry sector. ROCAP has supported major natural resource programs of CATIE, with some financial and in kind support from host governments and bilateral missions. Table I presents a preliminary grouping of environmental and natural resource programs in the region against the five program areas defined in this strategy.

This level of funding clearly shows that implementation of this strategy begins from a solid foundation. Life of Project E/NR grant and loan funding for the region is now estimated at \$151 million.^{1/} In addition approximately \$21 million in jointly programmed local currencies have been committed by host governments for environmental and natural resources activities in 1988/89. LOP funding for new FY89 projects totals over \$59 million, not including the proposed ROCAP regional project.

The table shows that while sustainable agriculture programs are being addressed by most missions, the other priority areas, with the exception of Costa Rica, are not receiving significant direct dollar funded support from bilateral missions and will require more attention in the future. ROCAP is designing a project to address the priority areas: the scope and funding level of the project will be determined during FY89.

The table, at best, is incomplete and only a crude measure. Many older projects did not explicitly target environmental concerns and the portion of total funding dedicated to the five priority areas can only be estimated. Some fully funded regional projects, bilateral projects reaching the end of their funding cycle, and centrally funded projects active in the region are not represented either.

^{1/} Measured by those projects that have planned FY89 obligations. Does not include the proposed ROCAP E/NR Program scheduled for late FY89 initial obligation.

Table I

CURRENT ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT
IN CENTRAL AMERICA

LOP and FY 1988/89 AID OBLIGATIONS FOR ONGOING AND NEW PROJECTS
IN FIVE E/NR PRIORITY AREAS:

- A. Sustainable Agriculture
- B. Production from Natural Forests
- C. Management of Wildlands and Protection of Biological Diversity
- D. Management of Critical Watersheds
- E. Policy Formulation, Institutional Strengthening,
and Environmental Education

Mission	Type	Total FY88/89			A.	B.	C.	D.	E.
	O/N	LOP	OBLIG.						
- US\$000 -									
BELIZE									
-Commercial. of Alternative Crops	O	8170	1000	0	250	250	200	300	
COSTA RICA									
-N. Zone Consol.	O	5150	1306	200	500	500	0	106	
-FORESTA	N	7500	7500	1026	2912	1959	0	1603	
EL SALVADOR									
-Tree Crops	N	6000	2000	0	1000	0	0	1000	
-Agribusiness	N	3500	1000	1000	0	0	0	0	
GUATEMALA									
-Highland Agric. Dev.	O	31900	5400	2000	700	0	2500	200	
-Tech. Trad. Exports	N	5500	750	0	0	0	750	0	
HONDURAS									
-Forestry Dev.	O	16700	2700	0	1350	135	405	810	
-Nat. Res. Mgmt.	O	15000	1000	750	0	0	250	0	
-IPM/EAP	N	900	900	900	0	0	0	0	
-LUPE	N	36000	3000	2250	0	0	750	0	
ROCAP									
-Coffee Pest Control	O	6000	1000	1000	0	0	0	0	
-Tree Crop Prod.	O	9000	1500	1500	0	0	0	0	
SUBTOTAL ONGOING		91920	13906	5450	2800	885	3355	1416	
SUBTOTAL NEW		59400	15150	5176	3912	1959	1500	2603	
GRAND TOTAL		151320	29056	10626	6712	2844	4855	4019	

Note: O = Ongoing, N = New, Totals = Grant plus Loan

Sources: FY88/89 Country Action Plans, FY89 Congressional Presentation, Annex III and interviews with CA Mission ARD and Program Staffs.

While the level of funding currently programmed for the priority areas, in global terms, is significant, the needs far outweigh projected expenditures. For AID to have a measurable impact in the region, the level of funding should rise.

Table II presents a range of AID funding targets for the decade 1989-98. From the current base of approximately \$25 million a year, the targets range from \$400 to \$650 million. These funding targets comprise the projected programs of the five operating missions in Central America: Guatemala, El Salvador, Honduras, Costa Rica, and ROCAP. Annual funding levels per mission will average between \$13 and \$19 million per year.

Table II

	<u>AID FUNDING TARGETS*</u>					
	<u>FY89</u>	<u>FY91</u>	<u>FY93</u>	<u>FY96</u>	<u>FY98</u>	<u>TOTAL</u>
low	25	35	40	45	50	400
medium	25	35	50	75	75	545
high	25	45	65	85	95	650

* For selected years. Total is for all ten years.

These targets are representative and cannot be interpreted as "authorized" funding levels. The low range assumes that current levels of funding will continue but with limited real growth in AID funded programs. The higher target assumes that as economic stabilization programs are no longer as necessary, some funding can be shifted to the environmental and natural resources program.

An additional factor determining AID levels is the participation of other donors in these programs. Currently, major external donors -- multilateral organizations and bilateral donors -- have targeted to a limited degree environmental or natural resource management objectives. Following traditional lending patterns, some projects, particularly power generation, include funds for watershed or reserve protection. In other cases, agricultural credit projects finance tree crops and reforestation. In general, however, a review of current projects produces little evidence of other donor support.

There are indications of greater interest on the part of other donors in environmental programs and AID will use this strategy as a basis for discussions to stimulate greater commitment of funds and a sharper focus. If funds from other donors increases, AID's role may turn to more of a broker rather than a primary source of funds.

This Strategy calls for strong working relations between key public sector institutions and non-governmental organizations in the execution of programs with complementary funding. Clearly, AID funds can only be effective when they are coupled with programs "owned" by host governments and private groups. While this approach is expected to enhance the absorptive capacity of executing organizations in the region, there may still be constraining limits on the size of programs that can be effectively executed. Only experience will tell.

The Central America Missions, including ROCAP, have followed closely the growing awareness of the Agency and the international community in general of the critical problems of environmental degradation and destructive exploitation of natural resources. This Strategy represents a concerted effort to focus our ongoing programs on these issues and provide a framework for a greater leadership role of AID in assisting host governments, regional educational institutions, private local and international groups to strengthen their pursuit of environmentally sound policies and practices. This effort to improve environmental quality and promote sustainable yields of natural resources will contribute significantly to AID's humanitarian, economic, and foreign policy objectives in the region. As concluded in the AID Policy Paper on Environment and Natural Resources.

Long-term economic growth in developing countries is possible only if natural resources are properly managed. The Agency will continue to expand its focus on natural resources and will increase efforts to assure that natural resource and environmental concerns are integrated into all AID supported development activities. The Agency will continue to encourage other U.S. and international organizations to pursue environmentally sound practices. AID will also continue to support a broad range of institutions and organizations that can contribute to protecting the environment and managing natural resources.

The consequences of the Agency's environmental activities extend beyond immediate environmental and natural resource concerns. Efforts to improve environmental quality and promote sustainable yields of natural resources contribute significantly to the Agency's humanitarian, economic, and foreign policy objectives.

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PRINCIPAL E/NR PROJECTS IN CENTRAL AMERICA

<u>Country/Mission</u>	<u>Project Name/Number</u>	<u>Life of Project</u>
<u>PANAMA</u> (Program discontinued)	Watershed Management (525-0191)	1979-1985
	Natural Resources Education OPG (525-0257)	1984-1988
<u>COSTA RICA</u>	Natural Resources Conservation (515-0145)	1979-1985
	Environmental Education OPG (515-0162)	1980-1984
	BOSCOSA (WWF Matching Grant)	1987-1989
	FORESTA (515-0243)	1988-1995
<u>HONDURAS</u>	Forestry Development (522-0246)	1988-1996
	Natural Resources Management (522-0168)	1980-1988
	Rural Technologies (522-0157)	1979-1988
	Land Use and Productivity Enhancement (522-0292)	1989-1996
	Environmental Education (OPG to AHE) (522-0234)	1983-1986
<u>GUATEMALA</u>	Highlands Agricultural Development (520-0274)	1983-1988
	Small Farmer Diversification Systems (520-0255)	1981-1987
<u>ROCAP</u>	Fuelwood and Alternative Energy Resources (596-0089)	1979-1986
	Tree Crop Production (596-0117)	1986-1991
	Regional Watershed Management (596-0106)	1983-1989
	Regional Integrated Pest Management (596-0110)	1984-1989

EXCERPTS FROM PN-AAV-464 APRIL 1988
(AID POLICY PAPER ON ENVIRONMENT AND NATURAL RESOURCES)

A. Specific Policies and Regulations Governing Environmental and Natural Resources Assistance Activities

In addition to the fundamental interest in economic development and humanitarian concern that underlie A.I.D.'s efforts to protect the environment and conserve natural resources in developing countries, Agency policies in this area are governed by specific legislation and regulations.

a. Environmental Effects of A.I.D. Actions

Regulation 16 (22 CFR Part 216) provides detailed guidance on evaluating the environmental effects of projects, programs and activities proposed for A.I.D. funding. This regulation formalizes the Agency's commitment to ensure that environmental considerations are fully integrated into the A.I.D. decision-making process regarding all A.I.D.-funded projects and activities. Since adoption in 1976, and revision in 1980, these regulations have required systematic environmental review of the Agency's activities. They ensure that the reasonably foreseeable environmental impacts resulting from A.I.D.'s actions are identified in order to permit consideration of alternatives and mitigating features in project design. Guidance for environmental review provides detailed descriptions of the Initial Environmental Examination, the Environmental Assessment, and the Environmental Impact Statement, and states when each type of analysis is required.

2. Local Currency

Since the mid-1950's, PL-480 and related food-aid programs have been a source of support for natural resources conservation and forestry in developing countries. The Agency's policy is to utilize available PL-480 resources for reforestation, agroforestry, watershed management, soil conservation, and park, wildlife, and habitat protection. PL-480 resources are used to complement and strengthen bilateral efforts in environment and natural resources. These resources often are most effective when channeled through FVOs, NGOs, and the Peace Corps. Strong management attention with technical and other supporting inputs are essential to effective local currency programming and implementation of Title II food-aid activities.

The Agency recognizes that some activities funded with local currencies may have potentially serious environmental consequences. Although A.I.D.'s formal environmental procedures (Reg 16) do not apply to activities funded with host country-owned local currency, the Agency is committed to ensuring, through appropriate alternative environmental procedures, that these activities are environmentally sound. Guidance regarding environmental review of these activities is being prepared and will be made available to all posts.

B. Environmental Legislation, Key Publications, and Significant Events Influencing A.I.D.'s Environmental Policies and Programs

Note that the summary of legislation given below is not comprehensive, but is presented simply to provide a general overview. Please refer to the text of the legislation for detailed guidance.

1969

Congress passed the National Environmental Policy Act (NEPA) to "encourage productive and enjoyable harmony between man and the environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality."

1972-1974

U.S. participation in the Stockholm Conference on the Human Environment; initial environmental review of A.I.D. infrastructure projects; environment training begun for all A.I.D. engineering staff; first technical assistance provided in industrial pollution control training, environmental guidelines, and environmental assessments of major, multi-donor river basin programs (the Mekong and Senegal Rivers).

1973

New Directions Legislation

1975

Court approved settlement of litigation regarding the effects of A.I.D. activities on the environment.

1976

With NEPA as a guide, A.I.D. adopted its first formal environmental procedures. These require a systematic review of new A.I.D. actions in order to fully integrate environmental considerations into the A.I.D. decision-making process.

1977

The Foreign Assistance Act (FAA) was amended, giving the President authority to strengthen the capacity of developing countries to manage their natural resource base and take into consideration the environmental consequences of development actions. This legislation also required that specific efforts be directed to maintain, and where possible, restore the land, water, vegetation, wildlife, and other resources that support economic growth and human well-being. When combined with the Agency's own environmental regulations, the essential legislative and policy framework was established to focus attention and financial resources directly on environmental and natural resource problems.

1978

The FAA was amended further to highlight environmental concerns and natural resource issues as critical targets for establishing sustainable growth. FAA section 103, for example, declared that deforestation and its consequences are a threat to improving agricultural production and meeting the basic needs of the poor.

A.I.D. co-sponsored a U.S. Strategy Conference on Tropical Deforestation and began to hire foresters. A policy statement on pesticides was also issued.

1980

A.I.D.'s regulations were revised to allow for greater flexibility, and to incorporate specific procedures on the use of pesticides. The Agency acquired a greater ability to focus on the problems associated with assessing potential environmental impacts of A.I.D. supported assistance activities. These changes were adapted from improved regulations of the Council on Environmental Quality issued under NEPA, and Executive Order 12114 concerning the environmental effects of major federal actions abroad.

The World Conservation Strategy was issued and a new Forestry, Environment and Natural Resource Office was created in A.I.D./Washington.

1981

Section 118 of the FAA was amended to require environmental assessments for any A.I.D. project significantly affecting the environment. This Act essentially approved and adopted the revised A.I.D. regulations.

A.I.D. co-sponsored the U.S. Strategy Conference on Biological Diversity and issued the first formal Agency policy on forestry.

1983

Section 119, entitled Endangered Species, was added to the FAA. This section stated that the preservation of animal and plant species through the regulation of hunting and trade, limitations on pollution, and the protection of wildlife habitats should be an important objective of U.S. development assistance. Protection of endangered species was also emphasized.

New Policy Determinations on Environment and Natural Resource Aspects and Development Assistance (PD-6) and on Forestry Policy and Programs (PD-7) were issued.

This Sector Strategy on Environment was published.

1984

The Sector Strategy on Forestry was published.

1985

OPIC investment activities were mandated to be consistent with Sections 118 and 119 of the FAA.

U.S. Strategy on the Conservation of Biological Diversity was published.

1986

The FAA was amended to reflect further concern about the environment and natural resources. The former section 118 on environment was renumbered to 117. A new section 118 was added which requires the president to place a high priority on conservation and sustainable management of tropical forests. This section also states the Country Development Strategy Statements (CDSSs) must include an analysis of actions to conserve remaining natural forests. The amendment also mandates that an annual report be prepared documenting how A.I.D. is implementing this section.

Authorization legislation included a \$2.5 million earmark for the protection of biological diversity.

Section 119 of the FAA was amended to encourage the participation of local people in all stages of project design and development relating to biological diversity. A.I.D. is required to enter into long-term arrangements in which the recipient country agrees to protect ecosystems, support research, and deny assistance for actions that significantly degrade protected areas. CDSSs are required to include an analysis of the actions needed to conserve biological diversity. Whenever feasible, activities are to be carried out by PVOs.

HR3750, now enacted into law, and Section 537(g) of the 1988 Foreign Assistance Appropriations Act, directed A.I.D. to monitor the economic and environmental soundness of Multilateral Development Banks (MDBs). A.I.D. is required to compile a list of MDB projects which may have adverse impacts on the environment, natural resources, or indigenous peoples.

1988

The A.I.D. Manual for Project Economic Analysis was published. This manual provides guidance on incorporating concerns regarding natural resources and the environment into standard project economic analysis.

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