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**SUSTAINABLE NATURAL RESOURCES MANAGEMENT
IN GUATEMALA: A CONCEPT PAPER
(DRAFT)**

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It is not often that a team is provided such an objective and open running field during the preliminary phases of project development. While the size and composition of the team provided a considerable wealth of experience and expertise, it did force all involved to reconsider some of the most fundamental precepts of agriculture and natural resources programming. As abbreviated as this process was, the team appreciated USAID/Guatemala's support and guidance.

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SUSTAINABLE NATURAL RESOURCES MANAGEMENT IN GUATEMALA: A CONCEPT PAPER

A. Introduction

USAID/Guatemala has determined that natural resource management is critical to its overall objective of broad-based, sustainable economic growth in Guatemala. It has therefore made "improved natural resource management" one of five strategic objectives, and has approved the design of a new project that will serve as a flagship effort to address problems in this area. The purpose of this paper is to propose directions and opportunities for the new project.

Following this introduction, section B describes the present state of natural resource problems in Guatemala. Section C presents a problem statement and discusses the four most important causes of Guatemala's natural resource problems. Section D describes institutional priorities, guiding operational precepts, lessons learned, and factors to guide site and activity selection.

Section E describes four project opportunities and activity options keyed to the causes of environmental degradation described in section C. If carried out effectively, these will significantly contribute to improved natural resource management and to broad-based, sustainable economic development in Guatemala.

Finally, annexes A, B, and C provide a more detailed analysis of: (A) resource laws, specifically the land tenure situation; (B) technical options to halt or slow degradation; and (C) background information on the Tropical Forestry Action Plan (TFAP)/Guatemala.

B. Present State of Guatemala's Natural Resource Base

Guatemala's rich natural resources support economic activities that provide more than 70 percent of national employment and generate over 80 percent of the gross national product, primarily in the agricultural sector. However, the resource base is being depleted at an alarming rate. The symptoms of this degradation follow.

Deforestation has been occurring at a rate of 60-90,000 hectares per year, due principally to the need for fuelwood and new agricultural land. Conservative estimates indicate that Guatemala will lose all its primary forests within 30 years if deforestation continues at its present rate of 1-1.5 percent annually.

Soil erosion in the western and central highlands is causing irreversible declines in agricultural productivity.

Watershed deterioration is rapidly reducing the quantity and quality of water available for domestic, industrial, and agricultural use. Sedimentation in hydro-electric facilities is much greater than originally projected and is expected to greatly diminish output.

Pesticide mismanagement is contaminating food products and water sources, reducing agricultural productivity, and causing health problems and occasional fatalities among agricultural workers and consumers.

Loss of biodiversity is occurring on a massive scale, especially in the tropical forests of the Petén. An estimated 133 animal species are threatened with extinction. The disappearance of a myriad of plant species signifies the loss of medicinal and industrial potential.

Urban and industrial pollution has resulted from toxic and solid waste disposal from coffee processing, sugar cane refining, agrochemicals, industrial wastewater, inadequate sewage systems, and high sediment loads in rivers.

C. Problem Statement

Accelerating rates of natural resource depletion portend declining productivity, leading to increasing poverty, which will ultimately inhibit Guatemala's nascent democratization process. Encouraging resource users to modify their behavior and look beyond the short-term is essential to maintaining an environment for investment and sustainable development.

The principal problem can thus be stated as follows: The unsustainable use of natural resources in Guatemala seriously jeopardizes long-term economic growth.

The symptoms of resource degradation discussed above have prompted responses in the areas of soil conservation, protected area development, forest plantations, and ecotourism. While these responses have been useful, they have failed to address the direct causes of natural resource degradation. No prioritized analysis of these underlying causes exists. In their absence, efforts to encourage the adoption of more sustainable practices have been diffuse and largely unsuccessful.

Indirect causes of natural resource degradation exist at many levels. They include increasing population growth (approximately 3.2 percent), low levels of literacy and education, skewed distribution of access to capital and other economic resources, and continued human rights violations. These issues, while not direct causes of natural resource degradation, are intimately related and should be considered within the context of proposed solutions to the problem.

Direct causes—perhaps more easily addressed in a project or program context—include an unsupportive policy environment, weak institutions, lack of access to land and natural resources, and inadequate technology generation and dissemination. These causes will be the focus of AID's natural resource programming and are further analyzed below.

1. Policy Environment

A wide range of policies have contributed to the depletion of Guatemala's natural resource base. National, regional, and local policies affect the legal, social, and economic environments in which people make decisions regarding the management of natural resources. Policies can provide incentives, disincentives, or be neutral with respect to natural resource management. They may be contained in formal laws or decrees or simply reflected in actions. They may have direct (e.g., sector-specific policies) or indirect (e.g., general macroeconomic policies) impacts. The types of policies providing disincentives to sustainable natural resource management are presented here in the order in which we feel they need to be addressed.

Sectoral policies. The Guatemalan government has made recent strides to develop policies and laws to reduce deforestation and encourage reforestation and more appropriate land use (TFAP, 1991). The principal problem is that many of these policies are unenforceable or simply unenforced. Declaring certain areas protected or national parks is pointless without enforcement or incentives that benefit the local population. Current sectoral policies promote the centralization of responsibilities for resource management rather than allocating them to local community groups, individuals, and municipalities.

Macroeconomic policies. Macroeconomic policies are normally explicit and provide fairly clear signals through prices, interest rates, tariffs, and other mechanisms to encourage (or discourage) economic activity. Though they rarely target natural resources per se, their indirect effects can be profound. Several examples: Price and tariff policies that diminish the profitability of forest products indirectly promote deforestation. Tariffs and restricted access to credit inhibits adoption of productive technologies, lowering yields and requiring the use of more land resources to produce a given quantity of output (Bradley et. al., 1990). Poor fiscal policies, particularly tax policies, inhibit public investment in agricultural and natural resource research and development activities.

Human rights policies. Guatemala has a history of discrimination and violence against large segments of its population, often resulting in the appropriation of productive lands and the displacement of indigenous *campesinos* onto fragile lands of the highland steep slopes and forests (Martinez and Severo, 1970). This has combined with rapid population increases, impacting negatively on the natural resource base.

Resource distribution policies. Guatemala's primary productive resource, land, is concentrated in the hands of a small percentage of the population. Land distribution policies (principally the lack of real agrarian reform), similar to human rights policies, are implicit and have contributed to decreasing economic alternatives for populations settled on or near marginal lands.

2. Institutional Issues

Weaknesses in the structure and operation of public and private organizations in Guatemala have hindered their ability to provide goods and services to members and other

beneficiaries. The most significant reasons for this are addressed below by organization type.

a. Government Organizations

The following weaknesses make it difficult for government organizations to deliver the technologies and support services needed to address natural resource problems.

Lack or inappropriate allocation of funding. Organizational effectiveness depends in part on the ability to mobilize resources. Funding is typically used for personnel costs, while funds for vehicles, fuel, and supplies are often lacking. When organizations are well-funded, most funds tend to get "stuck" at higher bureaucratic levels rather than filter down to where they are more effective.

Lack of qualified and motivated personnel. Low salaries and the need to maintain high employment levels result in an inability to attract and keep skilled individuals. This results in poorly qualified personnel, high turnover, and a pervasive lack of motivation.

Highly politicized nature. Much of what organizations accomplish serves their own needs rather than the purposes for which they were originally designed.

b. Private Organizations

The development of NGOs and grassroots community organizations has been inhibited by political violence, attempts to manage too many activities, and the pervasiveness of government organizations. In general, NGOs suffer from many of the problems associated with government organizations. However, experience in Guatemala has shown that where adequate funding and technical focus are present (e.g., GEXPRONT), strong potential for positive impact exists. Local NGOs and community organizations, motivated to improve conditions in their own localities, show particular promise for addressing and resolving income and resource use problems.

c. Municipalities

Friction is mounting between municipal administrators and community members dissatisfied with local government operations, which also suffer from general lack of funding and an inherently political nature. Project implementation should not be based solely on assumptions of broad-based support of the municipality. Nevertheless, the need to cooperate with and work through municipalities is becoming increasingly clear. The GOG's increasing interest in decentralization offers good opportunities to do so.

3. Lack of Access to Land and Natural Resources

Guatemala has one of the most inequitable distributions of land in Latin America. Most fertile farmland is concentrated in *latifundia* on the south coast, while the

highlands are characterized by *minifundia*, which include some marginal but much good agricultural land. According to the 1979 agricultural census, 80 percent of all farms occupied 10 percent of farmed land. These farms had an average of 0.9 hectares to support a family above the poverty level. In addition to the land-poor, there are an estimated half-million or more landless *campesinos*. At the same time, 0.2 percent of all farms (over 450 hectares) occupied 33 percent of the land.

Natural resource conservation is intrinsically related to resource access and tenure. In a predominantly agrarian society such as Guatemala, lack of access to natural resources, especially land, is one of the foremost constraints to the sustainable use of natural resources. In other words, if one does not own or control a resource, there is no incentive to maintain it.

Tenure insecurity is also a factor in environmental degradation. Renters (approximately 30 percent of smallholdings) and smallholders with insecure tenure due to lack of title are often unwilling to invest scarce resources in soil conservation and other improvements, the long-term benefits of which they will likely never see. The fact that most smallholders lack legal title to their land also makes the acquisition of credit difficult, if not impossible, inhibiting efforts to practice more sustainable farming techniques such as planting permanent crops. Poverty and the need for immediate economic gains have also inhibited the planting of more environmentally sound permanent crops, which take several years to generate a return on investment.

Due to policy and institutional factors, including virtually nonexistent land taxation and lack of enforcement of laws governing idle lands, much *latifundio* farmland is underutilized or left idle, resulting in low levels of land productivity and little employment generation. This has contributed to a failure to stimulate an active land market in Guatemala, further exacerbating the land distribution problem.

To meet income and subsistence needs, landless and land-poor peasants have been forced to expand the agricultural frontier. Land fragmentation has resulted in the inability by smallholders to support their families on increasingly smaller plots of land. That, coupled with extremely limited access to alternative (non-farm) economic opportunities, has resulted in accelerated environmental degradation. The widespread deforestation of hillsides and other fragile lands and ensuing soil erosion, watershed deterioration, and desertification have had grave impacts on the long-term economic sustainability of these areas. Landlessness has also resulted in the expulsion of many *campesinos* from the highlands, leading to massive urban migrations and the colonization of virgin areas, most notably in the north.

Recent efforts to augment the income-generating and foreign exchange-earning potential of *minifundios* have resulted in the introduction of nontraditional crops such as broccoli and snow peas. Economic gains have led in some instances to environmental degradation, a function of high pesticide use and soil erosion. The introduction of nontraditional crops has also purportedly displaced basic grain production, accelerating deforestation and cultivation on fragile lands.

An additional factor is the inability to manage public lands effectively. Many upper watersheds, parks, and other forested areas are municipally or communally owned. Despite municipal and *communal de jure* controls over their use, these areas have been subject to widespread clearing for agricultural use and indiscriminate cutting for fuelwood.

See annex A for additional detail.

D. Strategic Focus

Due to resource limitations, USAID/Guatemala will be unable to address all of the direct causes of natural resource management problems described above. To help to narrow the project's potential scope, this section addresses operational precepts, institutional priorities, lessons learned, and factors to guide site and activity selection. Descriptions of possible technical interventions, selection criteria, and monitoring methods are provided in annex B.

1. Operational Precepts

Guiding operational precepts for natural resource programming that must be addressed in the project paper design phase include:

- Natural resource conservation is a long-term process, often well beyond AID's programming cycle, and must be somewhat excluded from standard AID programming and pipeline concerns.
- Successful efforts will integrate a range of activities in a concentrated geographical area, beyond strict natural resources programming (e.g., irrigation, potable water, health, education). They will also build upon AID experience and activities in these areas.
- To achieve widespread replication of technical interventions, the project will need to deal with policy, institutional, and resource access constraints that discourage sustainable natural resource management.
- To optimize limited resources and reduce management burdens, project activities must be tightly clustered geographically.
- AID efforts to address natural resource degradation should increase their coordination with other donors. (See TFAP, annex C.)
- A broader application of technologies to increase yields of most cereal, horticultural, and tree crops is needed.
- The technology generation and transfer process must emphasize applications and meet the needs of resource users.

- Support to private sector institutions should be emphasized.

2. Institutional Priorities

The GOG has placed high importance on natural resource management and sustainable agricultural practices throughout the country. Of particular interest, however, is the Altiplano which has the highest population density and agricultural production, and where severe and irreversible natural resource degradation by erosion, deforestation, and pesticide contamination is occurring.

As discussed above, natural resource management is also one of USAID/Guatemala's five strategic objectives. The Agricultural and Natural Resource Strategy and the 1993 Program Objectives Document/Action Plan specify sustainable agriculture and protected areas management in the Altiplano and the Petén as major program elements.

The New Project Description echoes this determination, and further states that efforts will be implemented on a decentralized, local level, private-sector basis. It also states that activities will be carried out through a watershed approach, addressing protection of areas under the Guatemalan System of Protected Areas (SIGAP) and forest management. Though the impact of this project should be perceived on a nationwide basis, intervention in the Altiplano is a priority.

3. Lessons Learned

Previous activities, including the HAD and Commercial Land Markets projects, provide the following lessons that should be incorporated into the design of this project.

- The project should take advantage of agriculture and natural resource efforts underway or recently completed. In addition, it should be integrated with other USAID projects in education, health, democratic initiative, population, roads, and potable water.
- It should focus on a concentrated geographical area.
- The design should be simple, with a limited number of activities within the project itself.
- It should work with the GOG on policy issues but focus on decentralized, private-sector delivery mechanisms.
- It should address (but not try to resolve) complex, long-term, and deep-rooted problems such as structural reform in land markets.

The next section describes technical considerations that further delimit possible project activities and prioritize to a finer degree the geographical areas and technical project interventions.

4. Site and Activity Selection

Priorities and lessons learned lead us to conclude that the project should concentrate in the Altiplano, and that its major activities should address the causes of constraints to natural resource degradation, as well as the techniques to make natural resources management sustainable.

Below are listed factors that should be used to select the project site and its activities.

a. Site Selection

- Consider areas with the highest potential economic impact, both at the local as well as the national level.
- Eliminate areas from consideration that could be managed sustainably without project intervention, or those with little chance of achieving significant resource management improvements even with project support.
- Consider areas where plant or animal species or their habitats are in danger of extinction.
- Consider areas where AID or other donors have previously worked so as to capitalize on progress made or capacity installed.
- Favor areas with many potential beneficiaries.

These factors would not necessarily be weighted equally, and tradeoffs will undoubtedly be necessary. The specific weighting, as well as final site selection, should be completed during the project paper phase in consultation with USAID and the GOG and other representatives of Guatemalan society.

b. Activity Selection

Policy, institutional, and resource access improvement activities should be undertaken after site selection, as the choice of activities that will be socially, economically, and biophysically viable will be site-specific. Activities will be prioritized according to their ability to affect changes that facilitate the adoption of sustainable agricultural and natural resource management techniques.

The project will focus on activities that provide resource users/adopters the highest income or satisfaction of food needs, consistent with an appropriate, sustainable land use, be it forestry, crop or livestock production, or perhaps other activities that do not involve direct