

resource management (e.g., ecotourism). A range of possible activities, categorized by land use potential in the context of a watershed, and a strategy on how to select them, are described in annex B.

E. Opportunities for Problem Resolution

Available information, AID experience, and site visits indicate that the project has several strategic opportunities to address the four causes of natural resource management degradation described in section C, above.

1. Policy Reform

a. Opportunities

As outlined above, macro and local level policies have profound impacts on the adoption of sustainable natural resource management practices on Guatemala's fragile slopes and tropical lowlands. Over the past two years, a number of changes have occurred in national policy, particularly legislative reforms, to provide a more supportive environment for natural resource management. The most important are:

- Demilitarization of some rural areas and reduction of guerilla activity appears to be opening opportunities for community organization.
- New forestry, fisheries, and protected areas legislation provides new ownership opportunities, long-term concessions, and other policy improvements.
- Relaxation or elimination of trade and tariff restrictions have opened export markets, increased high-value production, and expanded opportunities for profitable and sustainable agriculture.
- Increasing real prices of wood products, taken in conjunction with reforms such as improved tenure arrangements, may provide additional income opportunities and incentives for longer-term forest resource conservation.
- Decentralization and privatization is potentially leading to a concentration of government activity on regulatory or facilitative functions rather than direct implementation, and to transferring political authority to local and private-sector levels.

b. Project Activity Options

As the new project will be geographically focused and funding will be limited, the potential for affecting policy change will be confined. The project should make efforts, however, to support improvements being made in national policy and local-level policy change via the following types of activities:

- Support USAID policy dialogue with GOG and undertake analyses to encourage and facilitate implementation of new natural resources legislation; continue decentralization of political authority and privatization of implementation activities; and maintain and improve market reforms that enhance trade and investment opportunities and appropriate natural resource valuation.
- Support new environmental organizations (e.g., CONAP, CONAMA) for appropriate facilitating and regulatory activities through funding, training, and short-term technical assistance.
- Develop mechanism(s) for implementing policies at the project site (e.g., watershed, municipality, community) level. Examples include strengthening local and municipal tax structures and implementing regional land-use regulations.

2. Institutional Strengthening

a. Opportunities

The selection and strengthening of implementing institutions is crucial to the success of the project. As stated in the problem statement above, weaknesses in both public and private sector institutions are common. The political climate in Guatemala points to the need for a coordinated effort between public and private institutions. The public sector is to establish and support policy reforms and the private sector to assume a much stronger role in implementing field-level activities. The following opportunities should be considered in the development of the project:

- Existence of well-intentioned, local institutions.
- Common natural resource management interests among rich and poor in some geographical areas (Lake Atitlan).
- Availability of personnel of DIGEBOS, DIGESA, and other government agencies to cooperate with project.
- High interest in natural resource management by central government, local public and private organizations, NGOs, donors, and others.
- Political support for decentralization.

b. Project Activity Options

The following options focus on strengthening private and local institutions. Institutional support for the public sector is proposed in the section on policy reform, above. To the extent possible, institutional strengthening should be directed at existing institutions rather than new ones.

- Encourage and assist residents of the Lake Atitlan watershed to organize for protection and restoration of the local environment.
- Encourage and assist exporters to expand extension services directed at production to include soil conservation, watershed management, and reforestation.
- Assist farmers in selected watersheds to organize, and train them in administration. Involve them in selecting alternate economic opportunities that will assure continuity and expansion of successful activities of current small watershed program.
- Develop a research grant program on sustainable hillside agriculture based on needs expressed by farmers.
- Provide improved extension services, building on the HAD experience with emphasis on private sector services (agriculture and forestry extension combined).

3. Access to Land and Tenure Security

Investment in land, water, and forest management are dependent on (1) increasing the security of tenure for those already owning or managing land, while (2) simultaneously improving access by landless or land-poor peoples. Enhancing long-term production on either private, leased, or communal lands by activating land markets or pricing and tax structures offer a third promising area for consideration.

a. Opportunities

Improving the security of land tenure is perhaps the most cost-effective method to encourage sustainable land-use among those with land. Measures to do so are listed here in order of potential impact.

Land Banks

- The existence of working land bank programs (INTA, the National Institute for Agricultural Land Tenure\Penny Foundation) present opportunities for possible expansion.
- INTA has recently made provision of titles and reduction of the titling backlog a priority activity.
- INTA has new leadership with interest in promoting institutional reforms and reducing corruption to increase its efficiency and viability.
- There is increasing recognition that land banks offer a proven but perhaps cost-ineffective way to increase land access.

National Level

- There is increasing interest in reforming property registry and cadastre; several donors and multilateral development banks investigating large grants and/or loans.
- Several legislative proposals to reform land taxation offer options to improve land valuation and land market activation.
- A good technical point of departure exists for mapping, cadastre work, and titling.

Municipal Level

- Municipalities control significant expanses of land and have demonstrated interest in conservation.
- Municipal abilities to prescribe use of publicly held upper-watershed lands can facilitate some regulatory functions.
- There is often greater perceived tenure security on municipal lands that can support sustainable production.

Private Sector

- There is an apparent willingness and ability to allocate large, privately held land resources for sustainable use (protected areas, watersheds, etc.).
- The ability to enforce sustainable land-use on privately held land by resident farm laborers (*mozocolonos*, etc.) can be harnessed over large areas.

b. Options

- Support for national cadastral service and titling agencies to perform accelerated services in selected communities.
- Increase municipal leases to a minimum of 25 years, and prescribe sustainable uses through land capability classification.
- In the absence of legal title, provide alternative mechanisms (e.g., liens, credit guarantees) for loan acquisition for sustainable use.
- Support national land bank and mortgage policy reform at the national level through multi-donor policy dialogue.
- Improve compliance with extant national idle land and land tax laws (along with technical support for sustainable land use) to activate land markets.

4. Improved Technical Applications

When land holdings are too small to support the farm family, one solution, discussed above, is to increase access to land. Another is to increase productivity. The Altiplano have a long history of efforts to improve productivity, many of them successful, such as the recent introduction of NTAEs. It should be noted, however, that changes will be required in the policy, institutional, and resource access arenas to unleash the adoption of technologies that will increase agricultural and forest productivity.

a. Opportunities

The following are opportunities to apply technical solutions:

- The technical and organizational foundation for the expansion of farm forestry and sustainable hillside agriculture has been developed.
- Many examples of sustainable natural resource management practices exist throughout the highlands for use as demonstrations to accelerate diffusion.
- Because of the scarcity of land, farmers are receptive to technical improvements that may raise their income.
- The recent proliferation of NTAEs has aroused demand for irrigation which in turn has increased awareness of the need for management of upper watersheds. Many organizations marketing NTAEs could also be influential in achieving better management of those watersheds.
- The technical, organizational, and marketing foundation for the rapid expansion of NTAEs has been established.

b. Project Activity Options

The following options exist for project interventions:

- Building on HAD and other projects, new activities could combine the technical foundations with the good land use examples and help develop the potential of these examples as demonstration sites for extension programs.
- Analysis conducted through the Tropical Forestry Action Plan could promote a campaign for planting trees as cash crops by integrating them with agricultural crops and pastures on medium and large farms for producing poles, posts, fuelwood, fruit, and other products¹

¹ The complete feasibility study for such a campaign (Proyecto PIRAMIDE) is included in the TFAP, both financed by USAID. Although PIRAMIDE covers three regions of Guatemala, a new project could limit itself to one of these—the Altiplano. Large-scale tree planting would make a meaningful complement to the

- High demand for wood and the interest of local farmers in the forests covering the watersheds they depend on makes it increasingly attractive to sustainably manage some natural forests to generate income.
- By increasing the clients and institutions developed under the HAD project, any new effort can capitalize on irrigation and NTAEs as a viable alternative to traditional practices on appropriate sites.

For additional detail on technical options, refer to annex B.

mission's other two contributions to tropical forest—preservation in protected areas and sustainable management in the Petén. See other donor activities anticipated under the TFAP in annex C.

ANNEX A

LAND TENURE SITUATION IN GUATEMALA

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A. The Legal Tenure Structure Generally, and in the Highlands

Guatemala has the most skewed land distribution system in Latin America, and for that matter one of the worst in the world. As Dwight Steen commented, "Concentration of land holdings per se may not be detrimental to the economic, social and political development of a country. However, concentration of holdings in situations where land is under-utilized and under conditions of abundant rural labor, coupled with a lack of non-farm employment opportunities, ...may indeed prove to be a major obstacle to increased economic development."¹

Guatemala has suffered because it has not provided small farmers access to land, either via land reform or an active land market. In general, data have shown that small farms are more productive than large ones. The factors contributing to high yields per land unit on small farms should eventually come into play whenever a large farm is split into small ones; but productivity also depends on the operators.² The pay-off also depends on how long the country will have a surplus of labor at low opportunity cost. The administrative capacity to support small farms must be developed in countries that have a history of neglecting them.³ For example, credit and educational extension programs could be offered to assist the small farmer.

Thus we might expect Guatemalan smallholders to be much more productive, if only campesinos were afforded access to land through the market. However, without land banks and liquidity in the Guatemalan banking system, even with secure, enforceable titles, there may be little or no credit available to finance land purchases. The legal system of titling is only one factor that determines the availability of credit.

Is promotion of titling and land banks cost-effective? Without an active land market, campesinos may be forced to invade fragile reserves and unoccupied lands. It may be that financing of land banks with subsidized interest rates for the purpose of purchasing adequate and fertile land is actually cheaper than re-forestation of denuded, fragile landscapes. Certainly this problem merits further examination.

Family land may also be a problem in Guatemala. Family land tenure is the ownership of land by many related co-owners. In the Caribbean, most research shows a

¹ Dwight Steen, "Land-Related Problems: Central America" (undated photocopy) at 7.

² R. Albert Berry and William R. Cline, Agrarian Structure and Productivity in Developing Countries (1979) at 3.

³ R. Albert Berry and William R. Cline, Agrarian Structure and Productivity in Developing Countries (1979) at 3.

negative relationship between presence of family land and amount of agricultural production, although family land is a fairly small percentage of total land in the Caribbean.⁴ More specifically, one study of an AID titling project in St. Lucia evaluated cases in which farmers have fragmented holdings, with some parcels under family land tenure and others under individual ownership. The study documented how tree crops tend to be planted on individually owned parcels, whether or not these are the most appropriate parcels in terms of soils, slope, location, and so on, rather than on the family land.⁵ Thus, it seems that individual Caribbean investors prefer individual property to family land.

In Guatemala, the government previously sold rural and urban properties to indigenous populations in the form of family property. More recently it has been selling land in the form of communal land, which has similar restrictions. These sales have been carried out in a purchase-type "homestead" system under the Instituto Nacional de Transformacion Agraria, or INTA. This is especially true in the highlands. Unfortunately, no comprehensive or empirical studies have been done to monitor and evaluate the effect of this policy on productivity. While this form of tenure is commonplace, without firm data, the problem resists quantification either in terms of number of parcels or families, or loss of productivity. Still, based on the Caribbean data, I would hypothesize that communal land is a serious problem.

Yet another tenure-related problem in Guatemala is the legal and social bias against women. In general, Guatemalan women must demonstrate that they are responsible and honest parties in land transactions. Men have no such burden of proof. For example, family land is traditionally registered to the (male) head of household, who is entitled to make decisions for its use. A married woman could not be considered a head of household. Nor would she in practice be a registered landowner. This discrimination is compounded by the fact that women do not receive equal pay for equal work, making it difficult for a woman to prove she can be as responsible as a man.

B. The Reality of Titling in the Highlands

Guatemala has no national land cadastre. Thus, in virtually no part of the country does the property registry provide a nexus between a geographic description of the land, and a legal description of the land. This situation has created a degree of uncertainty throughout the country with regard to ownership.

There are only two registries in all of Guatemala, one in Guatemala City, and the other in Quetzaltenango. Property owners must record their property at the registry corresponding to the region where the property is located. This may be a great distance from the property itself.

⁴ Randy Stringer, John Bruce and David Stanfield, "Reform among the Smallholders: St. Lucia, Jamaica, and Implications for the Caribbean," in William Thiesenhusen, Searching for Agrarian Reform in Latin America (1988).

⁵ John W. Bruce, Family Land Tenure and Agricultural Development in St. Lucia (LTC Research Paper No. 79) (1983).

Property registry also is problematic. The registry in Guatemala City is now located in a "temporary" facility. It has been in this building since 1976. The last office was destroyed in an earthquake. The present facility lacks modern electrical circuitry and safety equipment. It is possible that if the building is upgraded, the registry may be kicked out to another location, losing the benefit of installed improvements. Other plant-related issues include availability of space, and generators in the event of electrical outages.

Attorney James Rowles, in an August 2, 1991 report to the Mission, was very concerned about the organizational structure of the registry. He argued that (1) the registrar should not be allowed to keep a portion of collected funds simply because he incurs civil liability for errors and omissions; and (2) registry employees should be civil servants constitutionally, and paid accordingly. Interviews with both private citizens and public officials confirmed a nearly unanimous belief that changes in the registry compensation system are critical to any reform effort.

Fees collected at the registry are split three ways: 40 percent goes to the registrar himself; 40 percent goes to the technical expert who reviewed the documentation from a legal standpoint; and 20 percent goes to office overhead, maintenance, and salaries. This distribution is not only legal; it is required by law. Because of this, estimates of the registrar's personal income over the past five years range from two to three million U.S. dollars. Given this level of compensation, it is likely the law could be recast to allow for a salaried position, with the excess used to finance modernization.

The registries are in drastic need of modernization. Delays in registration can take several weeks. (If you are a campesino traveling to the city to register a parcel of property, where do you stay in the meantime?) Documents are often lost, stolen, damaged, or simply incorrect. In short, the registries are a public institution that need support to professionalize their administration of public services.

Interestingly, the Guatemalan armed forces have mapped a great deal of the country already, using aerial photography. The military, which controls the (in theory civilian) Instituto Geografico Nacional (formerly the Instituto Cartografico Nacional), has been making its documents public. Also, the institute has developed cadastral maps for a large section of the south coast (22,000 square kilometers) and about ten cities. These maps and related data, developed by the institute, will prove invaluable in the development of a national cadastre and a multi-purpose land information system (MPLIS).

C. Administration and Management of Land by the Government

Natural resource management is very difficult in Guatemala today because the government lacks a comprehensive inventory of its property. Without well-defined property boundaries, it is difficult to imagine how nature reserves, parks, and fragile lands can be protected from encroachment by squatters and invaders. Further, without titling and farmer

access to affordable intensification technologies, land use in areas around reserves and fragile areas will be difficult to stabilize.⁶

Registry reform under an MPLIS would enhance the government's control of resource use and access, by providing a "roadmap" for subsequent policy reform via access to vital land information. Secure records of land boundaries are thus a means to protect parks, reserves, and fragile lands. Further, if the MPLIS could be combined with new titling initiatives, environmental management would be further enhanced: persons with secure title are more likely to engage in long-term agricultural practice consistent with environmentally sound uses. Thus a land records modernization project can have a direct and positive environmental component.

D. The Gravity of the Problem

1. Land Markets and Land Distribution

Lack of access to good land may increase environmental degradation, further complicating the government's land management efforts.⁷ One report concluded that:

"Examining the relation of unequal resource distribution to the environment involves a recognition that groups of users place differential demands on resources; the poor have a proximate, direct effect on them, while the impact of those who own ample land and water is indirect but just as decisive, if not more so, in determining resource destruction. Indeed, it appears that if the environmental problem is ever to be alleviated, the lock which large landlords have on most of the productive resources in some Third World areas must be substantially modified or broken through land reform. Problems of deforestation, for example, probably need to be solved in the major farming regions of the countries involved, far from the site of actual resource damage."⁸

This comment applies to Guatemala, as explained by William Thiesenhusen.⁹

⁶ See, for example, Stonich's observations based on data in Honduras, in William C. Thiesenhusen, "Implications of the Rural Land Tenure System for the Environmental Debate: Three Scenarios," to be published in Journal of Developing Areas (1991).

⁷ William C. Thiesenhusen, "Implications of the Rural Land Tenure System for the Environmental Debate: Three Scenarios," Journal of Developing Areas (accepted for publication, 1991).

⁸ William C. Thiesenhusen, "Have Agricultural Economists Neglected Poverty Issues?," (Lecture at the Annual Meetings of the Pakistan Society of Development Economists, Islamabad, 5-11 Jan., 1991) at 19.

⁹ William C. Thiesenhusen, "Implications of the Rural Land Tenure System for the Environmental Debate: Three Scenarios," to be published in Journal of Developing Areas (1991).

In Roy Prosterman's new book on agrarian reform, Rupert Scofield argues strongly that land reform (or some other redistributive measure) is needed to avert further land-based conflicts in Central America, especially Guatemala.¹⁰

2. Family Land and Communal Land

No data exist on the extent and consequences of family land and communal land in Guatemala under INTA's programs. The problem may be serious. As such, the issue calls for further analysis.

3. Titling

a. Modernization of the Registry

There is a clear danger to records as they are presently stored. In Nicaragua recently, two separate property registries were destroyed, leaving landholders no way to prove the validity of their ownership. In Guatemala itself, terrorists destroyed a civil registry, leaving countless citizens without birth, marriage, divorce, death, and other records. At one point, terrorists placed a bomb at the Guatemalan Property Registry. It was detonated, but fortunately resulted in no damage to persons or records. Fires, floods, and earthquakes also pose threats.

Less dramatically, records are at risk from rats and other animals; accidents (coffee spills); intentional acts (we saw a number of cases of fraud); and mildew.

Access to present records is limited. Only those near the city have convenient access. Computerization could allow modem access to persons throughout the country. Additional offices for easier access might also be considered.

As democratization takes hold, the government might want to broaden its tax base. If property taxation is to be effective, the MPLIS could give the government access to data it needs for collection. Property registry modernization attempts to address these concerns.

Investment in Guatemala, as envisioned by the Enterprise for the America's Initiative, the Caribbean Basin Initiative legislation, and the programs of the Overseas Private Investment Corporation, assumes the existence of a legal infrastructure to record these investments. Such a system does not exist for much of the country. If Guatemala is to be included in democratization and market reform with the rest of the Americas, it will need a reliable property registry to meet that goal.

Refugees present the government with yet another problem. Without an inventory of available lands, the government cannot provide sustainable land to returning refugees. At

¹⁰ Rupert W. Scofield, "Land Reform in Central America," at 167, in Roy L. Prosterman, Mary N. Temple and Timothy M. Hanstad, Agrarian Reform and Grassroots Development: Ten Case Studies (1990).

present, it is possible that refugees will be relocated to lands that are not agriculturally sustainable without further assistance.

b. Titling in the Highlands

Registry reform is irrelevant to indigenous peoples if they do not participate in the formal economy with legally titled land. The Guatemalan government has no data on the level of informality of ownership. Yet anecdotal evidence indicates that the vast majority of campesinos occupy small parcels of land outside the registry process, i.e., without formal legal status.

As people obtain title, they are brought into the formal, legal system and become participants in the economy. Unfortunately, we have no empirical study to explain why people do not have title in Guatemala. Is registration too expensive? Is it too far to travel to register property? Is the process too bureaucratic? Do registry users perceive any benefit to registration? Answers to these questions are vital to titling and title maintenance in rural Guatemala.

I suspect that bureaucratic and expensive legal processes deny the poor effective access to public legal institutions and exclude them from the democratic process. Hence the level of informality we witness in Guatemala. Further, lack of title is one way to deny a citizen official government recognition. It can be used to deny a citizen education, water, sewage services, electricity, roads, and so on. Titling of rural areas would promote a democratization process that so far has been lacking.

World Bank projects are beginning to link land regularization efforts to the promotion of sustainable development programs.¹¹

E. Recommendations

- Policy dialogue should commence to create GOG support for comprehensive land market liberalization policies (including possible land taxation, titling, land banks, and projects like the Fundacion del Centavo) to correct the inequality of land distribution. This should be combined with efforts to monitor and evaluate progress.
- The tenure status of family and communal land in Guatemala should be carefully reviewed and evaluated with a view toward recommending alternative structures, if necessary.
- The GOG will have to act to formalize an authoritative group to carry out any proposed modernization of the registry. Also, it should create a funding mechanism by reforming the registry's organizational structure and revenue

¹¹ Alaka Wali and Shelton Davis, Land Regularization in Special Amerindian Components of Bank-Funded Projects in the LAC Region (Washington, 1991) p. ii.

allocation methods. This process of registry modernization should involve a MPLIS, technical assistance to evaluate and monitor progress, and linkage to cadastre information from the Instituto Geografico Nacional.

- The special tenure problems of refugees will need urgent attention to avert ecological damage. In general, the Peten cannot sustain agriculture and should not be used for this purpose.
- The GOG should grant women equal status with men for legal property law and employment considerations. Follow-up analyses should evaluate required reforms.

F. Contacts

In reviewing the status of land in Guatemala, I met with Lic. Marco Antonio Castro Hernandez (Jan. 22-4, property registrar), Lic. Virgilio Reyna (Jan. 22-4, 28, chief assistant and attorney for the Property Registry), Licda. Gladys Anabella Morfin Mansilla (Jan. 23, attorney and member of the National Commission for Registry Reform), Lic. Alfonso Carrillo Castillo (Jan. 23, attorney and notary, president of the National Bar Association (the "Colegio de Abogados") and member of the National Commission for Registry Reform ("Comisión Nacional de Reforma Registral"), Jorge Rafael Recinos Acevedo (Jan. 23, director general of the Registry of Intellectual Property and author of a Bar Association proposal for modernization), Rodolfo Cardenas Villagran (Jan. 23, attorney, notary, and former mercantile registrar), Ernesto R. Viteri E. (Jan. 27, attorney, board of directors of the Commission for Registry Reform, and personal advisor to the president of the Republic), Lic. Carlos Enrique Ortega T. (Jan. 27, president of the Instituto Nacional de Transformacion Agraria, or INTA) and Ing. Agr. Jose Guillermo Gonzalez Mencos (Jan. 27, second vice president of INTA), Ing. Rene Gonzalez (Jan. 28, technical sub-director of the Instituto Geografico Nacional or IGN), Ing. Edgar Antonio Bram H. (Jan. 28, head of the cadastre division of IGN), Rachel Laush and Terry Sutton (Jan. 29, Presbyterian church, U.S.A. assigned to Centro Evangelico de Estudios Pastorales en Centroamerica (CEDEPCA)), and Ing. Sergio Mollinedo (Jan. 31, head of the Special Commission for the Assistance of Refugees, "CEAR"). During this trip I also met with Terry Brown (Jan. 29, mission director), Steve Wingert (Jan. 29, deputy director), Gordon Straub, Paul Novick, and Michael Alban (of the RD Office), Rod Tsuji (of the Penney Foundation Project), Alfredo Naketsuma and Keith Kline (of the Environment Office), Elizabeth Warfield (Fiscalization Project) and David S. Hoelscher (Economics and Trade Office).

