

PROGRAM FOR NATURAL RESOURCE MANAGEMENT IN UPPER WATERSHEDS

(GU-0133)

EXECUTIVE SUMMARY

Borrower:	Republic of Guatemala	
Executing agency:	Ministry of Agriculture and Nutrition (MAGA)	
Amount and source:	IDB (CO):	US\$ 40 million
	Local:	<u>US\$ 4.45 million</u>
	Total:	US\$44.45 million
Terms and conditions:	Amortization period:	20 years
	Grace period:	5 years
	Disbursement period:	5 years
	Interest rate:	variable
	Inspection and supervision:	1%
	Credit fee:	0.75% on undisbursed amounts
	Currency:	U.S. dollars from the Ordinary Capital under the Single Currency Facility
Objectives:	<p>The objective of the program is to improve natural resource management in upper watersheds by means of a strategy to support adjustment and/or conversion of production by small producers in rural areas. This objective will be achieved by strengthening natural resource management at the local level and promoting the development of productive activities that are environmentally and financially sustainable. This approach will help improve living conditions for the rural population, reconciling local aspirations for economic and social development with the need to preserve forest soil and water resources.</p>	
Description:	<p>The program will address the interconnected issues of environmental degradation and the high poverty rate through activities and investments designed to promote sustainable growth and to increase the social capital of rural communities, mainly by improving mechanisms for planning and implementing natural resource management. The specific program activities will be to: (i) develop</p>	

and implement instruments at the central and local levels to efficiently transfer central government aid to local communities and to strengthen their organizational capacity to protect the natural resource base; (ii) provide financial assistance, with technical support and physical inputs, for initiatives to transform systems of production and natural resource management through productive projects and support for nonagricultural productive projects; and (iii) develop local capacity at the municipal level for risk management, reduction of vulnerability to the threat of natural phenomena, and valuation of environmental services.

Component 1: strengthening local capacity for natural resource management (US\$3.3 million)

- (i) **Module 1:** Under this subcomponent, the institutional structure of the Ministry of Agriculture (MAGA) will be strengthened at the departmental office level.
- (ii) **Module 2:** This subcomponent will support participatory planning for natural resource management in rural communities through training events and mechanisms for coordination and consultation for productive investments and the preparation of natural resource management plans at the municipal and microwatershed levels.
- (iii) **Module 3:** Under this subcomponent, institutions providing technical assistance services will be strengthened through training, accreditation, and support for development of the market for technical assistance for agriculture and forestry. The technical assistance services for productive projects will be hired by the beneficiary institutions, which will select them from the rosters of accredited service providers to be updated by MAGA.

Component 2: productive investments for natural resource management (US\$27 million)

This component will support projects to transform land use patterns, converting unsustainable systems that degrade the natural resource base into environmentally sustainable productive systems, such as diversification into nonagricultural production.

Productive alternatives have been developed and reviewed according to technical criteria for environmental and financial sustainability. To be eligible, investments must be technical feasible under prevailing agricultural and environmental conditions in upper watersheds, must be environmentally and financial feasible, and must be

environmentally better than the systems they would replace. In addition, the alternatives must include a technology package that has been successfully tested in the field by small producers and must have a growing market and identified marketing channels.

To be eligible to participate in the program and receive benefits under it, participants must be small and medium-sized producers and must be organized in groups of producers involved in the same productive activity, such as traditional indigenous organizations or cooperatives, that carry out their economic activities in the municipalities located in the program area of influence. The assistance provided under the program will cover startup of productive conversion, so that after delivery of the technical assistance and physical inputs, the producers will have the management capacity to continue production and investments in the new systems that will increase their income.

The financial support provided through the technical assistance and physical inputs will be granted on a nonreimbursable basis through demand-driven selection procedures implemented by means of outreach activities and participatory local organization. However, the beneficiaries will be required under contract to generate savings, to be administered with the support of the community-based organizations, in the amount of the equivalent of the cost of the physical inputs received. This arrangement will promote savings on the part of the beneficiary producers. The Investment Regulations for component 2, productive investment financing, include the methodologies and guidelines for project preparation, selection, delivery of the technical assistance services, delivery and devolution of transfers, supervision, and evaluation.

Component 3: risk management, reduction of vulnerability, and environmental services (US\$4.5 million)

Module 1: Under this subcomponent, investments will be made to mitigate risks and protect specific vulnerable areas. The management activities will include strengthening community organization, training for risk management and environmental education, construction of minor infrastructure works for risk mitigation, such as repair of flood damage and other protection works.

Module 2: The purpose of this subcomponent is to value the environmental services provided by watersheds by reviewing the causal relationship between changes in patterns of land use and natural resource management and their impact on water resources. To this end, a plan will be implemented for calibration, a predictive mathematical model and for measurement and assessment of physical parameters, to assess the impact of management activities in upper

watersheds on the quality and quantity of water resources in lower watersheds. The findings will help value environmental services in terms of their economic impact, which may lead to the development of instruments for payment of such services.

**The Bank's
country and
sector strategy:**

The Bank's sector strategy is to: (i) support the development of public policy to promote sector competitiveness; (ii) improve sustainable management of natural resources through support for policies to strengthen the regulatory framework for use and valuation of environmental services and greater participation and self-management on the part of rural communities; and (iii) support the development of rural productive infrastructure and basic social services, in order to reduce transaction costs for families, displaced persons, and rural microenterprises seeking access to markets.

The program objectives are fully consistent with this strategy and with the poverty reduction strategy the Government of Guatemala is preparing with assistance from the Bank and other international organizations. The program components and activities will help achieve these objectives.

**Environmental
and social
review:**

The proposed strategy for natural resource management is to change the way rural communities are organized to manage natural resources and how systems of production are designed so as to improve resource management and increase the return on productive activities and rural family income. The program will have a positive environmental impact in that it will promote technological change from unsustainable systems to sustainable ones. In addition, it will improve family income and will reduce pressure on the agricultural frontier. Its impact will be national in scope.

The review showed that the highlands located in the program area of influence have the agricultural, environmental, and climatic conditions to foster adjustment and/or conversion of production from the current systems of annual crops that degrade resources, to more environmentally and financially sustainable perennial systems. The program activities will focus on achieving conversion with those goals. The eligibility criteria stipulate that projects must meet basic environmental sustainability criteria. Section D of chapter IV describes the positive environmental impact identified and the measures to be taken to mitigate any potential adverse impact. The program design includes social equity-enhancing criteria in the geographical coverage of the program and emphasizes the participation and consultation of the rural communities targeted. It will also promote the participation of indigenous communities, which represent the majority of the target population.

Benefits: The net benefits of the program will be achieved in the short and medium terms through its local and regional impact. Some of these benefits cannot be directly quantified, but are important and substantial, especially those stemming from the increase in the social capital of the rural communities through the activities to promote the organization, local participation, and community-based management of natural resources.

As for the quantifiable financial benefits of the program, that is, the increase in income resulting from the productive investments, the sample of alternative projects analyzed showed a 34% rate of return for the projects to be carried out under component 2 of the program. This figure contrasts with that obtained in an analysis of conventional productive systems, some of which are neither environmentally nor financially sustainable.

Risks: The Government of Guatemala has assigned high priority to the proposed program as part of its poverty reduction strategy. Certain risks have been identified in connection with institutional issues in the executing agency of the program. The Ministry of Agriculture (MAGA) has recently experienced a degree of institutional instability, reflected in the three time turnover in its executive and managerial staff during the current administration. However, in the past 12 months, the MAGA has consolidated its technical cadre. In addition, special care has been taken to select a participatory institutional design with extensive interaction with the rural communities, producer associations, community-based organizations, and local governments. This approach will give the program a broad base of stakeholders and ensure support from the target population, a prerequisite for efficient program execution.

Execution of the Bank's portfolio of projects in Guatemala is generally rated satisfactory. However, there have been some delays in the startup of certain projects, associated with fulfillment of the conditions precedent to disbursement. In order to reduce the time required for fulfillment of the conditions precedent for the proposed program, the technical requirements for program execution were agreed upon with the executing agency during program preparation.

Special contractual clauses:**As conditions precedent to the first disbursement:**

- a. A program execution system must be set up that includes: (i) establishment of the Program Board of Directors (CDP) (paragraph 3.7); (ii) establishment of the Program Coordination Unit (UCP), with the appointment of at least the program director (paragraph 3.8); and (iii) selection of the program administrative agency, all of which must be in the terms agreed upon with the Bank.
- b. The CDP must have implemented the Program Operations Manual, which will include the Investment Regulations for component 2, in the terms agreed upon with the Bank.

Special contractual conditions:

For the execution of module 2 under component 3, the MAGA must enter into an interagency agreement with the National Institute for Seismology, Volcanology, Meteorology, and Hydrology (INSIVUMEH) (paragraph 3.35).

Poverty-targeting and social sector classification:

This operation qualifies as a social equity-enhancing project, as described in the key objectives for Bank activity set forth in the Report on the Eighth General Increase in Resources (document AB-1704). Furthermore, this operation qualifies as a poverty-targeted investment (PTI), based on geographic targeting. The population in the program area, which totals approximately 2 million, is 71% indigenous (over 70%), some 1.4 million people, who live in rural areas, and over 80% of whom are poor (paragraph 1.32). The borrowing country will be using the 10 percentage points in additional financing (paragraph 2.25).

Exceptions to Bank policy:

None.

Procurement:

Bank policies and procedures will be followed for the awarding of construction contracts and the procurement of goods and services, as set forth in the loan contract. The program does not call for any complex or large-scale works. International competitive bidding will be required for goods and related services of US\$250,000 or more and for construction contracts in amounts of US\$1.5 million or more. International calls for proposals will be required for consulting services in amounts of US\$200,000 or more. Procurement below these thresholds will be governed by the procedures described in paragraph 3.44.

I. FRAME OF REFERENCE

A. Socioeconomic framework

- 1.1 Guatemala has a surface area of 108,889 square kilometers and is divided into 22 departments and 331 municipalities. Its population in 2000 was an estimated 11.3 million. With a gross domestic product (GDP) of US\$19 billion (2000), Guatemala has the biggest population and the largest economy in Central America. During the 1990s, the economy as a whole grew at an average annual rate of 4.06%, below the 6% target set in the Peace Accords and the level necessary to contribute significantly to poverty reduction.
- 1.2 In this context, growth in the agricultural sector and primary forestry was not very robust. For Guatemala to achieve the income levels necessary to significantly reduce poverty, it will have to implement policy measures and mechanisms for public and private investment that will lead to faster, sustainable economic growth. In particular, opportunities need to be identified for economic growth in rural areas, where most poor households reside.

B. The agrifood sector and rural areas

- 1.3 The Guatemalan economy is highly dependent on agriculture and forestry. This sector generates employment for half of the economically active population and accounts for 23% of GDP and two thirds of exports. Its importance is even greater if the agrifood sector overall is considered, including the chains of production stemming from primary sector production and the sector's direct link with the use and valuation of natural resources.
- 1.4 The rural population in Guatemala is significant, representing 60% of the total, and is relatively more dependent on employment and income from agriculture than most other countries in Latin America.¹ Poverty, especially extreme poverty, is higher in rural areas than in urban areas: 76% of the rural population is poor, especially in predominantly indigenous areas. Indigenous groups also have lower social indicators, such as illiteracy rates, and lower health and nutrition indicators than the rest of the population. Illiteracy rates are highest among women, at 62%. Among rural indigenous women, illiteracy exceeds 80%, and is compounded by monolingualism (they do not speak Spanish).² By way of comparison, in urban areas the poverty rate is approximately 50% (IDB country paper, 2000, p. 9).³

¹ Nonagricultural employment in rural areas in Guatemala is estimated at only 18% of total rural employment, whereas the average for Latin America is 24% (Berdegué, J. and T. Reardon, 2000, p. 8).

² Figures cited by IICA/CIDER in "Rural Women in Central America and the Caribbean and their Agricultural Capacity : Assessing their Reality", 2000.

³ Recent estimates, using data from the National Family Income and Spending Survey (ENIGFAM) (1989/99), indicate that almost 90% of the extremely poor population live in rural areas.

- 1.5 Agricultural production in Guatemala has a dual structure: on the one hand, there is a modern commercial sector, geared primarily towards high-value export crops, and, on the other hand, a subsistence farming sector with little excess production, mainly geared towards meeting domestic market demand. The products geared towards the domestic market are mainly basic grains and livestock. Basic grains are produced by small and medium-sized farmers scattered throughout the country, including marginal agricultural areas such as the highlands, mainly in the northwestern highland region, and the northern lowlands, especially Alta Verapaz and Lower Verapaz. These rural areas are characterized by extreme poverty and a large indigenous population. Underemployment is chronic, given the seasonal nature of subsistence farming and the declining productivity of the land.
- 1.6 Given the fragile environment and poverty levels associated with it, the government needs to take intensive action that should include, among other activities, assistance for productive adjustment and/or conversion, with emphasis on improving natural resource management and integrating rural areas into the national economy.
- 1.7 A little over one third of the total land area of Guatemala is forested. The forestry subsector contributes 2% of GDP, but over half the land has forestry potential. The discrepancy between the area with forestry potential and the currently forested area reflects the magnitude of deforestation. Low valuation of forestry resources partially explains the deforestation process, since the environmental benefits of the forest are not appropriated by the family units or enterprises that control the resource.
- 1.8 The productive strategies for the agrifood sector have led to the conversion of forested land to crop-farming and cattle-farming activities and the use of forests as a source of energy.⁴ An estimated 90,000 hectares of forest coverage is lost every year, due mainly to agricultural expansion, and 30% of the soil in the country has become highly eroded. This environmental degradation is assumed to be responsible for changes in seasonal water flow and quality, mainly as a result of sediment deposits in middle and lower parts of watersheds. Water quality has also been adversely affected by the excessive use of agrochemicals and by wastewater from urban areas and rural communities. This situation, compounded by the location of rural populations and infrastructure in high-risk areas, has led to increased vulnerability to environmental problems and damage from natural disasters.

C. Socioeconomic profile and natural resources in the program area

- 1.9 Degradation of natural resources, in association with high poverty rates, can be found throughout rural areas of Guatemala, but is especially intense in the highlands of the central and western plateaus and in Alta Verapaz and Baja Verapaz. Over 35% of the entire population lives in this area, which represents less

⁴ The United Nations Food and Agriculture Organization (FAO) estimates that over 60% of the energy used in the country comes from wood-burning.

than one fourth the country's surface area. The population density in the highlands is approximately 200 inhabitants per square kilometer. Linked to these demographic features, the rural poverty rate is approximately 82%.

- 1.10 Accordingly, the program area of influence includes the central and western plateaus and the Verapaz region, covering 12 departments and 94 municipalities. It is characterized by a high population density and limited availability of agricultural land, which puts pressure on natural resources. The program area is highly vulnerable to natural disasters and has a higher poverty rate than the national average.⁵ Furthermore, coverage for physical infrastructure and basic services is very low. This situation has led to both domestic and international migration, which has helped ease the demographic pressure and supported the local economy through remittances. However, migration has had a limited impact in promoting substantial changes to improve natural resource management.
- 1.11 In brief, the program area of influence is rich in natural resources but at the same time those resources have suffered significant degradation. The highlands are the source for 80% of the country's rivers and most of the village woodlots (over 50%), which represent over half the forest coverage in the highlands. This situation contrasts with the fact that almost two thirds of the land farmed on small farms is planted with annual crops, many on soil suitable for forestry management or perennial crops. The relationship between agriculture and the environment, which affects the degradation of natural resources, the mountainous terrain, highly erosive soil, and high rainfall are associated with socioeconomic conditions that contribute towards perpetuating an economically and environmentally unsustainable situation. However, a factor that has to some extent limited the deforestation of natural forests in indigenous communities in the Guatemalan highlands is the system of social organization and community living and development. This has clearly been the case in the management of the community and municipal forests that have avoided deforestation precisely thanks to traditional rules of conduct and community forest management.
- 1.12 The degradation of natural resources in these areas of the country and its linkage to communities with high poverty rates is a structural problem that has been observed since the mid-20th century. Noteworthy among the factors contributing to the situation are the following: (i) high demographic pressure; (ii) high transaction costs to access markets; (iii) weak local institutions; (iv) market failures associated with internalization of environmental externalities; and in general, (v) policies and programs that have become biased against rural areas.
- 1.13 These are the basic social, agricultural, and environmental factors involved in the problem the proposed operation seeks to address by improving the approach to

⁵ The rural poverty rate in the northern region is 87% and in the western region, 81%, compared with a national average of 75% (SIS/IDB, using ENIFAM survey data). See also the Poverty Reduction Strategy, SEGEPLAN, October 2001.

natural resource management, taking into account the fragile environment in the region and contributing to economic growth and poverty reduction.

D. Country strategy for the sector

- 1.14 The Government of Guatemala, through the MAGA, plans to implement a strategy for development of the rural economy by increasing the competitiveness of the agrifood sector and instituting mechanisms for sustainable management of natural resources. Special emphasis will therefore be placed on activities designed to improve management capacity at the local level and technical training for farmers in production processes and natural resources management.
- 1.15 With this vision, efficient systems will be established to promote investments in rural production, the development and adaptation of sustainable technology, and improvements in productive infrastructure.⁶ Two of the core issues for the Guatemalan government are implementation of the Peace Accords and of the Poverty Reduction Strategy, which is consistent with the Peace Accords and also supplements them.

E. Bank country and sector strategy

- 1.16 The sector situation described above requires a country strategy that will help develop the rural economy. Accordingly, the Bank sector strategy for the sector is to support: (i) the formulation of public policies to promote sector competitiveness; (ii) the provision of services to support agrifood production that have the features of public goods; (iii) the development of rural productive infrastructure and essential social services; and (iv) improved sustainable management of natural resources, through policies to support the use and valuation of environmental services and greater participation and self-management by rural communities.
- 1.17 The Bank country strategy for the period 2000-2003 described in the country paper is to support the government in meeting the challenges of achieving sustainable economic development while assigning priority to the fight against poverty. The main focuses of the strategy that are relevant to the proposed program are: (i) for the focus on growth, to provide special support to increase the competitiveness of the productive sectors and to promote rural development, agriculture, and environmental protection; and (ii) for the focus on equity, to assist the indigenous population, which is predominantly rural, and to strengthen local management capacity.
- 1.18 The program objectives are fully consistent with this strategy and with the poverty reduction strategy the Government of Guatemala is preparing with the support of the Bank and other international organizations. The program activities and components will help achieve the objectives of the strategy.

⁶ MAGA, Agricultural Policy, 2000-2004: Strategic Guidelines for its Implementation", Guatemala, June 2001.

F. Experience of the Bank and other donors

- 1.19 The Bank has experience in the execution of projects for rural development, natural resource management, and participatory social programs to support the rural indigenous population, both in Guatemala and in other countries in Central America. In Guatemala, it has executed the program for management and conservation in the Upper Chixoy River basin and is currently implementing the sustainable development program in Petén (which has experienced substantial delays due to the change in executing agency and other operational problems that are being addressed). The program for community development for peace (which focuses on the areas most affected by the armed conflict) includes mechanisms to promote community participation, which were reviewed and incorporated into the proposed program. The subregional program for the upper Lempa River basin (CA-0034) was recently approved (El Salvador, Guatemala, and Honduras).
- 1.20 The proposed program will supplement initiatives being financed under the program to support restructuring of agricultural production, which has components to: (i) develop agricultural technology; (ii) improve plant and animal health services and food safety; (iii) promote conservation and management of natural forests; (iv) help develop agricultural exports; and (v) support the development of the regulatory framework for water resources.
- 1.21 Noteworthy among the other programs and projects for international cooperation in Guatemala is the comprehensive natural resource management program (MIRNA) being prepared by the World Bank concurrently with the proposed program. It focuses on 44 municipalities in the western highlands in the departments of Huehuetenango, San Marcos, Quetzaltenango, and Quiché. The two project teams have been working closely together, since the projects share similar focuses and are complementary in their respective areas of influence.
- 1.22 The Bank has financed the following relevant programs in neighboring countries: two operations in Nicaragua to support rural development through demand-driven productive projects and two operations for social and environmental management of natural resources, with a focus on watersheds and agroforestry development. Two operations were recently approved for Honduras, one of which is being implemented: the program for reactivation of the rural economy and the multiphase program for natural resource management in priority watersheds.

G. Lessons learned

- 1.23 Considerable experience has been gained in the execution of natural resource management projects in rural communities in the highland region of Guatemala, specifically from the program for management and conservation of the upper Chixoy River watershed, and has been reflected in the proposed program. One of the lessons learned was that in order to motivate rural, primarily indigenous communities to participate, it is essential that a broad outreach plan be developed and implemented from the outset to disseminate the objectives, scope, and

instruments for assistance to be provided by the program. Community outreach must also include dialogue and openness towards issues of interest to the communities, and outreach workers must be fluent in local languages. As in other projects, execution and mid-term evaluation of the program for reactivation of agricultural and food production in Nicaragua highlighted the importance of maintaining “bottom-up” management of demand to achieve active community participation. At the same time, however, the process must incorporate market-driven production strategies. Similar projects carried out in the region have consistently demonstrated that activities for natural resource management with an environmental focus and conservationist approach to agriculture are not reason enough, in and of themselves, to motivate participation by poor rural producers if they do not also mean a substantial increase in participant income. In short, sustainable natural resource management is inextricably linked to addressing the socioeconomic situation of the rural poor.

- 1.24 The lessons learned from both the design and execution stages of many of the above-mentioned projects for natural resource management have been incorporated into the design of the proposed program. They are primarily reflected in: (i) the priority assigned to participation in the decision-making process by the target communities; (ii) the focus on improving income as the core strategy in sustainable natural resource management; (iii) the strengthening of the demand-driven approach to providing support for productive adjustment and/or conversion; (iv) the selection and hiring of the technical-assistance services by the beneficiaries; (v) the use of producer associations as the vehicle required for efficient provision of technical-assistance services; and (vi) the use of the experience and knowledge of local community-based organizations, which will be given a central part in the coexecution of productive projects. In addition, an effort was made to supplement the activities and investments carried out under other projects and initiatives in the program area.

H. Program strategy

- 1.25 The main challenge in the design of a strategy for natural resource management in the socioeconomic and environmental context described above is policy formulation and the development of institutions and technologies that will simultaneously and coherently contribute to economic growth, poverty reduction, and sustainable management of natural resources.
- 1.26 The proposed program was designed on the premise that change can be promoted in technology and in the structure of local production that will lead to sustainable management of natural resources and at the same time increase the return on productive activities and the income of rural families. To achieve that change, the right economic incentives are necessary: technical assistance, physical inputs, and properly identified training activities.
- 1.27 The above-described socioeconomic situation notwithstanding, the highlands of Guatemala have been shown to have the agricultural, environmental, and climatic

conditions needed for productive adjustment and/or conversion from subsistence systems based mainly on corn and bean production to more environmentally and economically sustainable perennial and semiperennial productive systems. Such conversion has taken place in the central highlands, in the departments of Chimaltenango and Sacatepéquez, where both small and medium-sized farmers have adopted productive systems for nontraditional export crops of much higher value than their traditional crops, with increases in their income.⁷

- 1.28 Examples of productive adjustment and/or conversion include the switch to such crops as organic coffee, fruit, vegetables, ornamental plants, and lesser fruits for export, through successful linkage between the agribusiness sector and small farmers in certain highland areas, which has increased productivity and rural income. There are also cases in which nonagricultural activities (such as weaving) have become major sources of income for rural populations in the country and at the same time represent a viable alternative to reduce pressure on natural resources.
- 1.29 **The program focus** revolves around three basic pillars. First of all, at the local level, the management capacity of community and grassroots organizations to manage natural resources and diversify local economic opportunities will be strengthened. The program focus will be to make investments to promote productive and economic transformation of upper watersheds in the northern, central, and western regions of Guatemala (see map). The second strategic pillar of the program will thus be to channel technical assistance and support with physical inputs to support the startup phase of that transformation, focusing on the allocation of resources to environmentally sustainable activities that are more likely to have a positive impact on rural income without creating distortions in the development of markets for goods, services, and factors of production.
- 1.30 The third pillar necessary to help to reverse the environmental degradation observed in upper watersheds is the preparation and implementation of management plans at the municipal, microwatershed, and subwatershed levels, identifying specific vulnerable areas and contributing to risk management and valuation of the environmental services generated in upper watersheds.
- 1.31 In this connection, the causal relationship between proper management of natural resources upstream and the economic, social, and environmental benefits downstream must be demonstrated. Technical demonstration of this relationship will help underscore the value of environmental services in economic terms. Guatemalan society at large can then use objective criteria for policymaking and investments that will lead to the recovery of natural resources in upper watersheds and improve the income of the inhabitants in those areas.

⁷ De Janvri, A., et al., 1999, "Sustainability in the Diffusion of Innovations. Small Holders Nontraditional Agro-Exports in Guatemala," *Economic Development and Cultural Change*, Vol. XX, No. X, University of Chicago. Damiani, Octanio, 2000, "El estado de la agricultura tradicional y de exportaciones en América Latina: Lecciones de tres estudios de caso", Washington, DC, IDB-SDS/ENV.

- 1.32 **Geographic area and beneficiaries:** the program will cover the highland areas over 1,200 meters above sea level in the watersheds of Lake Atitlán and the following rivers: Achiguate, Coyolate, Cahabón, Cuilco, Madre Vieja, María Linda, Motagua, Nauhalate, Ocosito, Polochic, Salinas, Samalá-Xacibal, and Naranjo; and the following subwatersheds: Xayá-Pixcayá, Pensativo/Upper Guacalate, San José, and Pacaranat. This geographic area is located in the departments of Chimaltenango, Sacatepéquez, Quetzaltenango, Totonicapán, San Marcos, Quiché, Sololá, Alta Verapaz, Baja Verapaz, Chiquimula, Jutiapa, and Japala. The watersheds cover an area of approximately 12,000 square kilometers, 94 municipalities, and a total population of approximately 2 million, 71% of whom are indigenous, over 70%—approximately 1.4 million—live in rural areas, and 80% are poor.
- 1.33 In selecting this area, the criteria used were based mainly on: production systems with low productivity on slopes; problems with environmental fragility and vulnerability; high poverty rates and low levels of social development; and proven existence of the agricultural and environmental conditions necessary for productive adjustment and/or conversion.
- 1.34 Small and medium-sized producers in rural communities in these upper watersheds who own and operate productive plots of up to seven hectares will be eligible to receive assistance for productive investments. These criteria mean that 90% of producers in the program area of influence will be eligible. However, to receive the program benefits, the producers must be organized in associations, establishing modules and groups organized to produce one or more products and market them successfully, through productive systems that have been satisfactorily proven to be technically, financially, and environmentally viable.
- 1.35 **Institutional framework.** The institutional framework for natural resource management in Guatemala is based on the Executive Reform Act passed in November 1997, which assigned the Ministry of Agriculture (MAGA) the functions of policy and strategy formulation and implementation to promote sustainable development of the agriculture, forestry, and hydrobiology sector. Management and direct intervention in the productive process by the MAGA and the institutions that report to it were eliminated. In the 1980s, the agricultural public sector had some 25,000 employees, but now has about 1,500. In November 2000, the new Ministry of the Environment and Natural Resources (MARN) was established, replacing the National Commission on the Environment (CONAMA). The purpose of the MARN is to formulate national policy on the environment and to regulate environmental protection. The MARN will participate in the program with a representative on the Program Board of Directors (CDP)
- 1.36 As part of its service strategy, the MAGA now operates 22 Departmental Coordination Offices, whose purpose is to promote the development of productive activities based on natural resource management at the departmental and municipal levels in their respective jurisdictions. To that end, the offices conduct outreach and coordination with organizations involved in agriculture and forestry development.

- 1.37 The program will support the formulation of national policies on natural resource management through a departmental- and municipal-level system based on the institutional framework outlined above. Municipalities, microwatersheds, subwatersheds, and watersheds will be used as the basis for planning, and support will be provided to local institutions in order to ensure effective community participation in the preparation and execution of investment plans and programs and other activities for natural resource management.
- 1.38 As part of its strategy for rural development and fulfillment of the commitments made under the Peace Accords, Guatemala is promoting effective participation of rural communities in the decision-making process on the services and assistance provided by the State for the socioeconomic advancement of rural communities. The program will therefore support the development of an outreach system to grassroots organizations for natural resource management and to channel the support provided by the State to rural communities under the proposed program. The outreach will be carried out through local institutions, which, for the purposes of the program, will constitute forums for discussion of natural resource management at the municipal level. The forums may be organized as agreed by the representatives of the respective community-based organizations and municipal council members.

II. THE PROGRAM

A. Objectives and description

- 2.1 The objective of the program is to improve natural resource management in upper watersheds so that it will be environmentally sustainable. The objective will be achieved through activities to strengthen natural resource management at the local level and help develop sustainable agriculture through productive adjustment and/or conversion of small and medium-scale farms in rural areas. This approach will reconcile local aspirations for economic and social development with the need to preserve forest, soil, and water resources and the national poverty reduction strategy.
- 2.2 The program will address the interconnected issues of environmental degradation and the high poverty rate through activities and investments to promote sustainable growth and to increase the social capital of rural communities, mainly by improving mechanisms for planning and implementing natural resource management.
- 2.3 The specific program activities will be to: (i) develop and implement instruments at the central and local levels to efficiently transfer central government aid to local communities and to strengthen their organizational capacity to protect and enhance the natural resource base; (ii) provide financial assistance, with technical support and physical inputs, for initiatives to transform systems of production and natural resource management in rural communities through projects for agricultural and forestry production and to develop nonagricultural production; and (iii) develop local capacity to reduce environmental vulnerability to natural phenomena at the municipal level, approaching planning at the microwatershed and subwatershed levels.

B. Program structure

- 2.4 Implementation of the proposed program structure will support training and strengthening of local institutions for the identification, validation, and implementation of projects for production and natural resource management. The local institutions to be given support include rural development committees, community-based organizations, and smaller communities. The program will support the strengthening of traditional forms of organization and the exchange of information and experiences among communities.
- 2.5 **The program consists of three mutually complementary components.** The first component will address institutional strengthening at the local community, municipal, and departmental level for natural resource management. Its target population will be rural communities, community-based organizations, and MAGA departmental coordination offices. The second component will help improve management of the natural resource base while concurrently helping to improve the income and welfare of the rural population in the program area of influence. The

third component consists of activities and investments to reduce vulnerability to natural disasters, to manage risk, and to develop criteria for valuation of the environmental services provided by watersheds.

1. Component 1: Strengthening local capacity for natural resource management (US\$3.3 million)

- 2.6 **Module 1** will finance consulting services and training for the human resources of the MAGA departmental coordination offices in the program area for outreach. The purpose of the services will be to upgrade their practices skills so that they can act as outreach workers and promote the program in the rural communities and local governments covered by the program. To this end, the experts and officials from the departmental coordination offices need to learn how to use community outreach techniques, to act as liaison with the area offices of the Program Coordination Unit (UCP), and to prepare investment projects, especially projects addressing youth and gender issues.
- 2.7 **Module 2 will strengthen local participatory planning for natural resource management at the municipal level.** Local institutions at the municipal level or municipal governments may apply for assistance under the program, as may rural communities through their local organizations. The assistance will consist of: (i) technical assistance provided by specialized consultants on the formulation of natural resource management plans in municipalities and communities that do not have any; (ii) financing for activities to increase awareness and provide information on methods and practices for environmental management and risk management for the prevention and mitigation of natural disasters; and (iii) training and awareness-raising events for local institutions on the need for and importance and benefits of local planning.
- 2.8 **Module 3** will support the development of a market for technical-assistance services by financing activities for information and training on the need to provide technical-assistance services to the targeted communities. This subcomponent is significant because since the beneficiary organizations will hire the technical-assistance services for the development and implementation of productive projects covered under component 2, they need to be aware of the supply of support services for the preparation and implementation of productive products and natural resource management plans.

2. Component 2: Productive investments for natural resource management (US\$27 million)

- 2.9 The component for productive investments for natural resource management will support the implementation of farm-level projects to transform patterns of soil use and systems that are neither environmentally nor financially sustainable and that degrade the natural resource base into more productive, sustainable systems that diversify local economic options. The investments to promote economic diversification and natural resource management at the community and municipal

level will be designed to improve the effectiveness of investment made to help reactivate the economy in the rural highlands of the country, improve natural resource management, and reduce poverty.

- 2.10 During program preparation, numerous alternatives for production were reviewed according to technical and economic criteria and their environmental and financial sustainability. The eligibility criteria for the investments will therefore be as follows: (i) the projects must be technically feasible, considering the agricultural, environmental, and climatic conditions in upper watersheds; (ii) a technology package must be available that has been properly validated in the field; (iii) the new systems must have been previously tested by small and medium-sized producers; (iv) the productive systems must be financially and environmentally sustainable; for purposes of the program, a productive system will be considered “environmentally sustainable” if it represents a better option than the system it would replace, with less adverse environmental impact that can be mitigated through good management practices; and (v) a growing market for the product must be ascertained and marketing channels must be identified.
- 2.11 **Project classification.** Based on surveys and consultations conducted to assess demand on technical analysis of the many alternative systems of production considered, the projects in the following areas will be eligible for financing, among other categories: (i) agroforestry; (ii) management of village or municipal woodlots; (iii) productive adjustment and/or conversion from conventional systems with low productivity to environmentally sustainable perennial or semiperennial systems with high productivity; (iv) construction and rehabilitation of basic infrastructure needed for production at the beneficiary group level, including the rehabilitation of irrigation microsystems for productive adjustment and/or conversion in suitable areas; (v) small-scale processing of timber and non-timber forest products; (vi) production and processing of organic coffee at the beneficiary group level; and (vii) development of community centers for collection and initial processing of primary production (drying, weighing, and packaging). As part of program preparation, eight alternative production systems, which represent but a sampling of viable alternatives, were reviewed in detail according to preestablished criteria. The same methodological guidelines will be used to analyze other management alternatives that may be identified during program execution for incorporation into the program.
- 2.12 Small and medium-sized producers, who must be organized in groups of producers involved in the same productive activity, such as traditional indigenous organizations and cooperatives, whether preexisting or organized for the purposes of the program, that carry out their economic activities in the 94 municipalities located in the program area of influence will be eligible to participate in the program and receive program benefits.
- 2.13 **Investment projects may only be financed during the startup period**, which varies from two to three years, depending on the features of the productive systems and the cost of the technical assistance services needed for preparation and

implementation of new production systems. The services will be provided by specialized firms or associations, nongovernmental organizations, or duly accredited professionals. The cost structure for the training and technical assistance services is such that the incremental cost for small, isolated producers is high. Because it is thus not efficient to provide services to individuals, the services will be delivered in modules to groups of producers organized for the purposes of participating in the productive projects. The modules and groups of beneficiaries organized will select and hire the technical assistance providers from a roster of service providers updated by the UCP and the MAGA Technical Services Unit.

- 2.14 The program will finance the costs of the technical assistance and physical inputs needed during the startup period for new productive systems (two to three years) to convert traditional systems into sustainable ones. The beneficiaries will supply any necessary labor. Investments in nonagricultural production such as honey, handicrafts, and non-timber forest products, will also be eligible for financing, provided they meet the program requirements.
- 2.15 Both the technical assistance and the inputs to be provided under the program will cease upon completion of the startup period. At that point, the producers are expected to have developed the necessary managerial capacity to continue production and to have new production systems in place, thanks to the investments, that will generate a higher income for them. The amount of technical and financial support to be provided under the program for the projects will be determined on a case-by-case basis, taking into account the type of project and productive investments to be carried out and the eligibility criteria and program requirements.
- 2.16 The financial support provided in the form of technical assistance will be nonreimbursable and will be provided by specialized service providers selected by the beneficiaries. The support provided in the form of physical inputs will be delivered through community-based organizations accredited under the program and selected by the beneficiaries. Contracts will be signed with these organizations for the purposes of the program. However, the beneficiaries will agree under contract to generate savings, to be administered with the support of the community-based organizations, in the amount of the equivalent of the costs of the physical inputs received. These obligations will be stipulated in the agreements between the program and the beneficiaries and are detailed in the Investment Regulations that are part of component 2.
- 2.17 The financing proposed for the investments to be made under this component is supplementary: it will only be used for new activities that meet specific environmental requirements. It will therefore not interfere with any financing the beneficiaries may obtain from conventional or unconventional sources of credit. On the contrary, the assistance provided under the program will help the beneficiaries become service-demanding producers with the capacity to pay for technical assistance and to receive credit from conventional and unconventional sources.

- 2.18 In order to guarantee environmental sustainability and better management of natural resources, financing for the new systems will not be approved if the system involve replacing forests or perennial or semiperennial crops with annual crops. The program will promote projects under which chemical inputs will be replaced with organic inputs, those including measures to reduce post-harvest losses, and those for sustainable management of village woodlots.

3. Component 3: Risk management, reduction of vulnerability, and environmental services (US\$4.5 million)

- 2.19 **Module 1: Risk management and reduction of vulnerability.** The purpose of this module is to provide training and guidance in communities to identify measures, plans, and investments that will reduce local vulnerability to natural disasters. It also includes linkage with the municipal authorities and civil society in the municipality to foster public awareness of current vulnerable conditions. The module will be carried out through training events and community organization for risk management, threat control, and environmental education.
- 2.20 Module 1 also includes financing for investments in minor protection works. Municipal authorities may request such investments concurrently with the communities concerned. Using the technical data provided in the feasibility studies, investments will be financed under the program for works and activities for mitigation and protection, such as the construction of minor infrastructure works designed to reduce flood damage or prevent landslides and similar natural phenomena.
- 2.21 In order to provide the technical grounds for this type of intervention, management plans were prepared for six previously identified critical watersheds. As part of the studies conducted for the prevention of disasters in strategic watersheds, the MAGA selected six watersheds and subwatersheds that are critically environmentally fragile, especially with regard to water production and water quality. The selection criteria used were: conditions for water supply and demand recharge; susceptibility to erosion and flooding, population density, and potential for environmental protection services, mainly for water resources.
- 2.22 **Module 2: environmental services.** One of the methodological problems in evaluating environmental services is the lack of technical data for diagnostic studies and impact assessments on the various alternatives for natural resource management. These are particularly important for water resources, since it must be empirically demonstrated that there is a cause-and-effect relationship between the various management approaches and water quality and flow downstream.
- 2.23 The program will finance formulation of a plan for measurement, monitoring, and assessment of water quality and flow parameters in a selected critical watershed, to gauge the impact of changes in management patterns. The cause-and-effect relationship between the changes in management patterns and water quality and flow indicators will be assessed using a predictive mathematical model that has

been extensively validated in other countries and calibrated and adapted to conditions in Guatemala.

- 2.24 The performance indicators for this component will be the assessments of changes in sediment conveyance and seasonal variation in water flow. This information will be used to determine the positive externalities generated as a result of the new natural resource management patterns and to prepare a technical proposal for the development of instruments to pay for these environmental services.

C. Cost and financing

- 2.25 The total cost of the program is an estimated US\$44.45 million, of which it is recommended that US\$40 million equivalent be granted as a loan from the Ordinary Capital under the Single Currency Facility. The borrower will be using the 10% in additional financing. Table II-1 below shows the breakdown by category of investment and source of financing.

Table II-1 PROGRAM COST (IN THOUSANDS OF US\$)				
INVESTMENT CATEGORY	BANK	LOCAL	TOTAL	%
I. Local management capacity development	2,100	1,200	3,300	7.4
1.1 Strengthening MAGA Regional Coordination Units	600	200	800	1.8
1.2 Strengthening local participatory planning	1,100	800	1,900	4.3
1.3 Strengthening market for services	400	200	600	1.4
II. Productive investments	22,900	1,750	24,650	55.4
2.1 Technical assistance for production and marketing	9,500	450	9,950	22.4
2.2 Investments in productive projects	13,400	1,300	14,700	33.0
III. Vulnerability and risk management	4,000	500	4,500	10.1
3.1 Protection works, organization and training	3,600	300	3,900	8.8
3.2 Valuation of environmental services	400	200	600	1.5
IV. Administration and supervision	3,550	300	3,850	8.7
4.1 Coordination Unit	2,300	200	2,500	5.6
4.1 Fund administration institution	700	0	700	1.6
4.3 Monitoring, evaluation, auditing	550	100	650	1.6
Subtotal	32,550	3,750	36,300	81.7
V. Contingencies	322	0	322	0.7
VI. Finance charges	7,128	700	7,828	17.6
6.1 Interest	6,728	0	6,728	15.1
6.2 Credit fee	0	700	700	1.6
6.3 Inspection and supervision	400		400	0.9
TOTAL	40,000	4,450	44,450	100.0

III. PROGRAM EXECUTION

A. The borrower and executing agency

- 3.1 The borrower will be the Republic of Guatemala. The executing agency will be the Ministry of Agriculture (MAGA), which will operate through a specific structure for the comprehensive program, basically through the Program Board of Directors (CDP) and a Program Coordination Unit (UCP). Community-based organizations and NGOs acting as local co-executing agencies and private technical assistance providers will also participate in the program, which will have an execution period of five years.

B. Program execution and administration

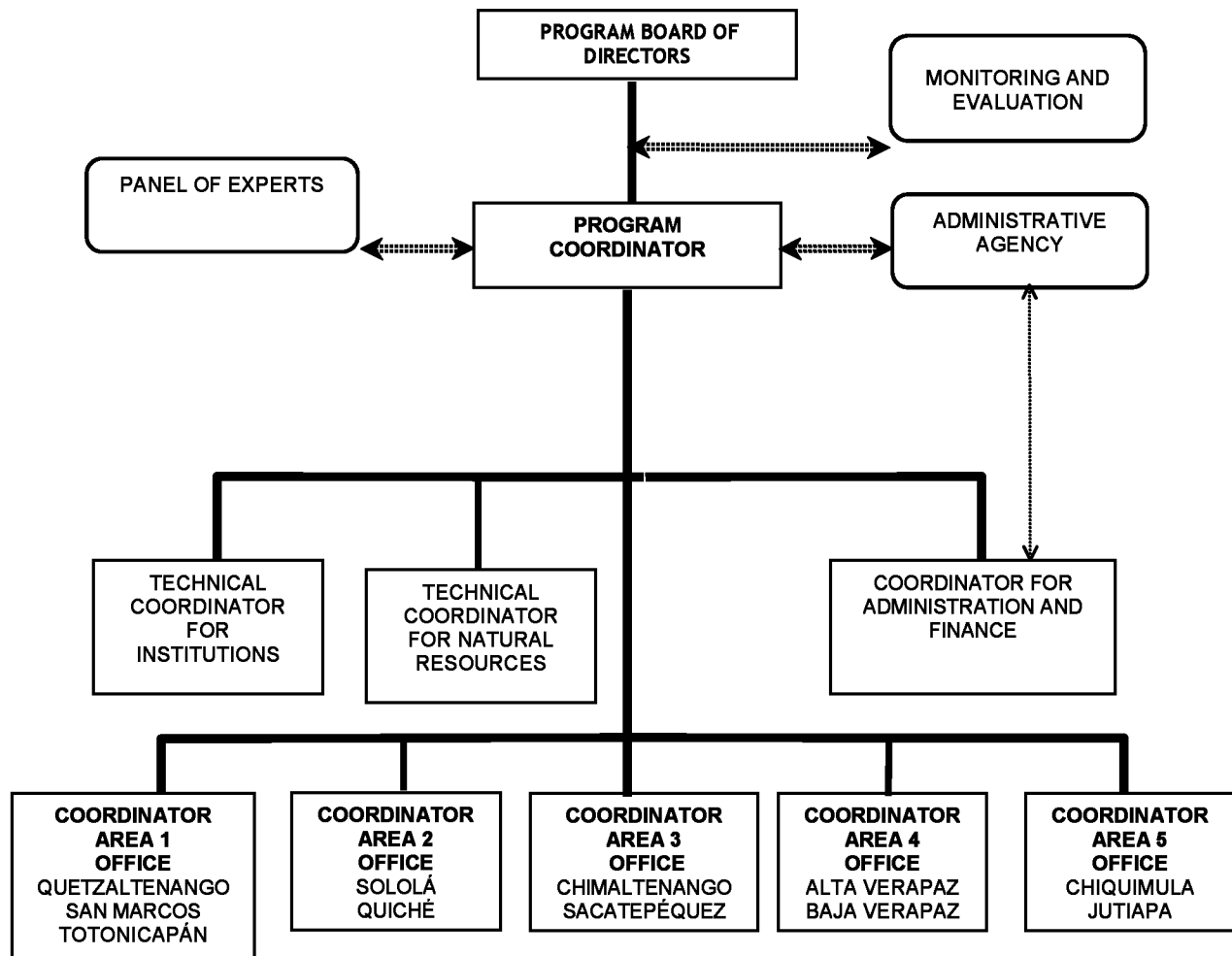
1. Institutional framework

- 3.2 The program will be executed with the participation of the above-mentioned central government agencies and local institutions, which will include producer organizations, community-based organizations, and members of Municipal Boards, with clearly defined roles and responsibilities.
- 3.3 From the central agencies at the top of the general hierarchy to the local institutions, the respective responsibilities will be: at the central level, policy-making, strategy formulation, and general program coordination; at the departmental level, outreach, guidance, monitoring, and supervision; and at the local (municipal) level, project initiatives (demand), development of plans for sustainable management of natural resources, project execution, training, technical assistance, and performance evaluation by the local institutions.

2. Execution strategy

- 3.4 The program execution strategy is participatory and recognizes the rights of rural communities to make decisions that affect their economic and social interests. The strategy of including local institutions is particularly important in Guatemala, especially in the program area, where most of the population is indigenous, with a rich tradition of internal discussion of issues affecting community development, but that has also suffered for a long time from the consequences of social exclusion, ethnic marginalization, and gender bias.
- 3.5 The ethnic and cultural richness of the rural population in Guatemala is also expressed in social behavior patterns with regard to natural resource management. Accordingly, for the purposes of achieving the program objectives, it is important to understand the behavior of the participating communities and to incorporate their knowledge. In brief, the participatory structure for program execution will strengthen the local decision-making process and will help build social cohesion in the rural communities located in the program area of influence.

TABLE III-1
ORGANIZATIONAL CHART FOR EXECUTION OF THE PROGRAM FOR
NATURAL RESOURCE MANAGEMENT IN UPPER WATERSHEDS IN GUATEMALA



3. Participating institutions

- 3.6 Table III-1 shows the organizational chart for program execution. At the central level, the Program Board of Directors (CDP) will be responsible for general program coordination and specifically for implementing sector policy and strategy in the program area and for coordinating planning. The CDP will approve the eligibility criteria for the productive projects and the amounts of the nonreimbursable contributions to be provided under the program to finance them. It will also approve and implement the Operations Manual and Investment Regulations under component 2, as well as the annual work plans. The CDP will be directly responsible for program evaluation and monitoring.
- 3.7 Membership in the CDP will consist of: (i) the Minister of Agriculture, who will act as Chairman and who will select and appoint the program coordinator, in consultation with the Bank, based on competitive selection procedures; (ii) a representative of the Ministry of the Environment and Natural Resources (MARN); the coordinator of the MAGA Project, International Cooperation, and Trust Fund Unit; (iv) the coordinator of the MAGA Rural Operations Unit; and (v) three representatives of community-based organizations in the program area, representing the local institutions. The CDP must be established as a condition precedent to the first disbursement.
- 3.8 **The Program Coordination Unit (UCP)** will be in charge of coordinating program planning, administration, and execution. It will coordinate the various program components, making any necessary adjustments and provide support for the Program Board of Directors (CDP) in the execution its line activities. The UCP will also be responsible for reviewing proposals for productive investments, verifying that the eligibility criteria for investments established in the Investment Regulations are being fulfilled under component 2 of the program and forwarding the proposals to the CDP with its recommendations as to approval. The UCP must be established and the coordinator appointed as conditions precedent to the first disbursement.
- 3.9 The UCP will also be in charge of keeping an up-to-date roster of the technical assistance service providers to be selected and hired by the community-based organizations to provide technical assistance for productive projects. Its main duties can be classified as coordination, guidance, management, and supervision. In order to promote interaction with the local institutions, especially the community-based organizations, the UCP will have five local offices, as follows: Area 1 Office for the departments of Quetzaltenango, San Marcos, and Totonicapán; Area 2 Office for Sololá and Quiché; Area 3 Office for Chimaltenango and Sacatepéquez; Area 4 Office for Alta Verapaz and Baja Verapaz; and Area 5 Office for Chiquimula, Juiapa, and Jalapa. The Area Offices will ensure coordination with the respective MAGA Department Coordination Offices. The UCP and the administrative agency described in the following paragraph will be required to open and maintain separate bank accounts specifically for management of the program resources provided by

the Bank and the local counterpart. They will also establish and maintain proper systems for accounting, finance, and internal oversight with the data necessary for reporting purposes that must be itemized and separate from that of other programs and so that suppliers and consultants can be paid. The UCP and administrative agency must also maintain proper files with supporting documentation of expenses incurred and paid using program resources.

- 3.10 **Administrative agency.** In order to guarantee proper administration of the program funds, a financial intermediary that is independent of the government must be hired. The institution in question must be legally established and have full legal and financial capacity and regulations. It will have the capacity to make payments, make commitments for procurement and issue payment authorizations on instructions by and on behalf of the State, represented by the MAGA/UCP, and to make reimbursements to which the co-executing community-based organizations and beneficiary organizations are entitled, pursuant to contracts and obligations duly authenticated by the executing agency. The administrative agency will be paid using program resources. It will be selected and hired by the MAGA, based on competitive bidding conducted according to procurement procedures agreed upon with the Bank. The administrative agency must be selected as a condition precedent to the first disbursement.
- 3.11 **Panel of experts.** The panel will operate as an advisory group, which is necessary to ensure that the criteria for project eligibility and selection are applied based on technical grounds and with integrity. Its members will be experts with recognized expertise in areas related to the projects eligible for investment. The panel members will receive compensation based on the type of technical opinions they issue on the projects and other matters on which they may be consulted. The UCP will make recommendations to the CDP based on reviews by the panel of experts.
- 3.12 **Technical assistance providers** will support the local institutions and communities in project preparation and implementation. The service providers will be hired by the beneficiaries through the community-based organizations to provide technical assistance for project preparation and implementation. They will be selected by the beneficiaries from a roster of firms compiled and accredited by the MAGA Technical Services Unit and the UCP.
- 3.13 **Community-based organizations.** These are local organizations with full legal capacity and the technical and managerial capacity to make commitments and contract loans. They will be key players in the productive project cycle, mainly the projects for adjustment and/or conversion. There are community-based organizations with a level of development that qualifies them as self-managed or self-sustainable in all the program departments, even if not in all the municipalities.
- 3.14 During program preparation, a field study was conducted on the community-based organizations and nongovernmental organizations (NGOs) that could participate in

joint execution of the program projects. Seventy-one community-based organizations were identified in the program area, of which 67 had reached the consolidation level and had the capacity to perform the necessary functions. The UCP will maintain a roster of the firms qualified to act as potential co-executing agencies for projects. Moreover, 89 NGOs were identified, 33 of which qualified as self-managed and 46 as having an acceptable level of consolidation. The municipal councils were also reviewed and those with operational municipal technical units (UTMs) were identified: of the 37 municipal councils reviewed, 23 were found to have consolidated UTMs.

- 3.15 **Program operations manual.** The operations manual is a crucial document to provide guidance for program execution because it sets out the duties and responsibilities of the Program Board of Directors, Program Coordination Unit, program administrative agency, local institutions, and beneficiary organizations. The operations manual will be based on the guidelines for program execution described in section C and will include the Investment Regulations for component 2 (“productive investments”) and the methodology for the preparation, selection, approval, supervision, and evaluation of productive projects. The operations manual agreed upon with the Government of Guatemala must enter into force prior to the first disbursement (the draft manual will be agreed upon and initialed during project negotiations, before the operation is submitted to the Committee of the Whole).

C. Execution mechanism for component 1

- 3.16 **Module 1. Assistance for departmental coordination offices.** The MAGA is present in rural areas in departmental capitals, with a departmental coordination office in each of the 22 departments or provinces of Guatemala. These offices are not responsible for project implementation, which has been delegated to the private sector and civil society organizations.
- 3.17 In addition to their regular duties, the MAGA departmental coordination offices will ensure program outreach and promotion. Their main role will be to provide information to users on sources of technical assistance and services for productive project preparation. To that end, they will ensure the necessary coordination with the UCP through the area office and the MAGA Technical Services Unit.
- 3.18 To perform these duties, the human resources in the departmental coordination offices will be trained in the core features of the program, and each office will draft a work plan for the outreach and public information activities in the municipalities within its purview.
- 3.19 **Module 2. Strengthening local participatory capacity for natural resource management.** The program will support the strengthening of local institutions that promote participation, which include municipal rural development committees.

Technical assistance will be provided under the program at the request of municipalities or communities in the program area, through consultants.

- 3.20 Socioeconomic concerns, land use, and natural resource management have received little attention in most municipalities in Guatemala. However, there have been some positive experiences strengthening community-based organizations and involving local institutions at the municipal level, such as the Alta Verapaz and Baja Verapaz program, supported by the German development agency GTZ, and the PREAPAZ program financed by the Canadian agency. The comprehensive natural resource management program (MIRNA) currently being prepared and to be financed by the World Bank will provide systematic support to local institutions in 41 municipalities in the western highlands. The proposed program will support the development of these institutions in the municipalities in its area of influence.
- 3.21 **Module 3. Strengthening technical assistance providers.** The technical assistance needed to prepare and supervise productive projects under the program will be provided by specialized service providers, which include consultants, foundations, local NGOs, trade associations such as the Guatemalan Association of Nontraditional Exporters (AGEXPRONT), and other specialized organizations, such as universities and the Institute for Agricultural Science and Technology (ICTA). The provision of private technical services for development of rural production is a relatively new activity in Guatemala and is therefore at the early stages of organization.
- 3.22 Since the program design provides that the beneficiary groups, communities, and community-based organizations will hire the technical assistance services themselves, users will need sufficient information on which to base their decisions. In addition, the service providers need proper information on the features of the program, especially the requirements for access to assistance for the preparation and implementation of productive projects.

D. Execution mechanism for component 2

- 3.23 The program will partially finance the preparation and execution of productive projects. This is the main component of the program in terms of the amount of financial resources allocated. The general process for project preparation, approval, and execution is described below. It may vary slightly, depending on the local community organizations and at the municipal council level.
- 3.24 Proposals or ideas for productive projects will be discussed by the organized producer groups, that is, the applicant, with the local institution in the respective municipal jurisdiction, so that the rural community can indicate whether it considers that the proposed initiative will help improve management of local natural resources on a sustainable basis and will not have any adverse environmental impact. The Investment Regulations under component 2 will detail

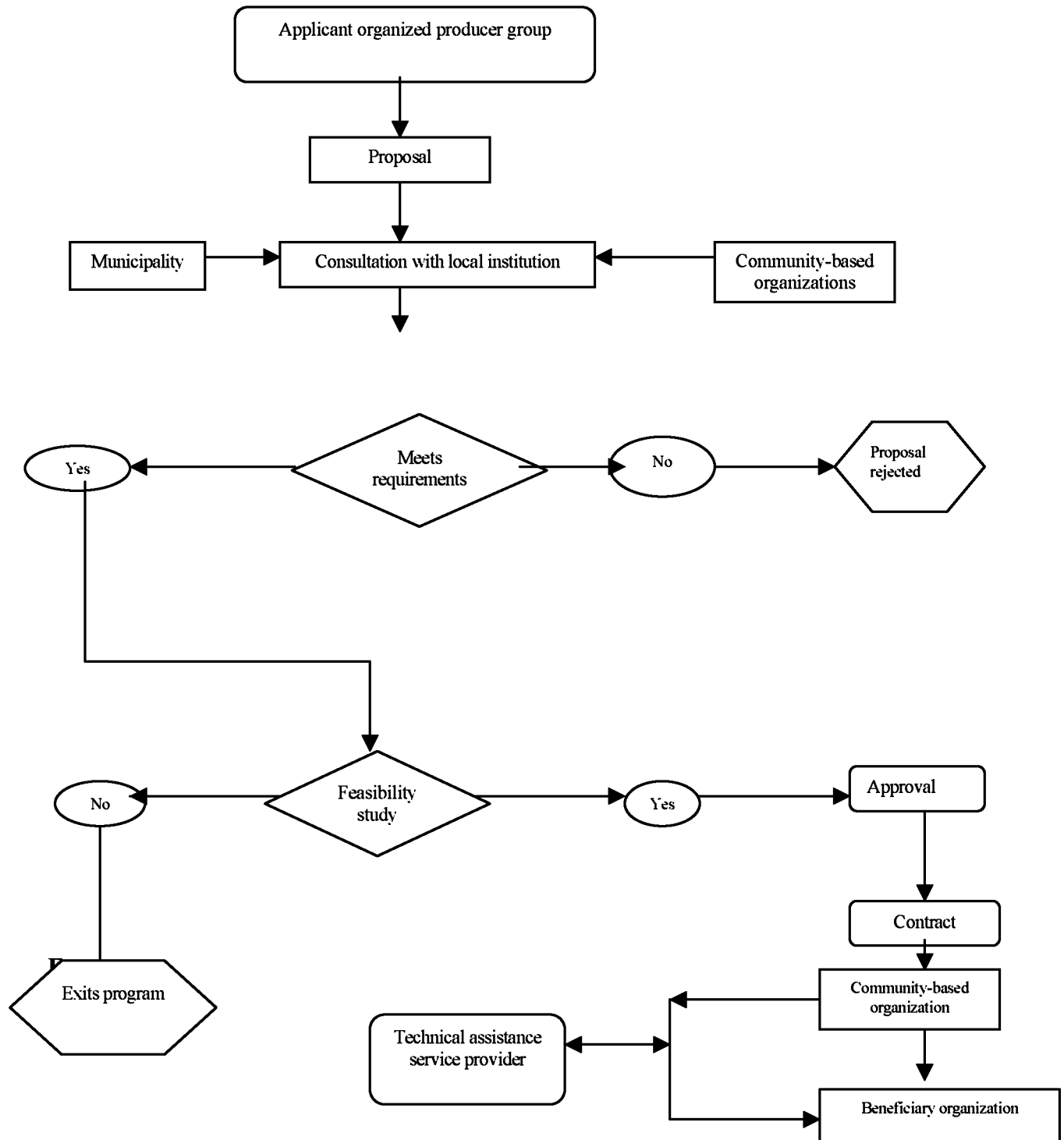
how the consultation process will work, depending on the type of local community organization, the services the municipal councils have, and the supporting documentation on the consultation deemed acceptable for the program.

- 3.25 The proposals may be submitted directly by the applicant community or through an associated community-based organization to the respective area office. The area office will verify that the proposal meets the technical, economic, and environmental sustainability criteria of the program. If so, the area office will advise the applicant to prepare a feasibility study, which will include a detailed project execution plan.
- 3.26 The applicant, or a community-based organization qualified under the program, will hire a service provider to conduct the study, based on the roster previously approved by the program. The area office will forward the feasibility study and project execution plan to the UCP for review. The UCP will then submit it to the Technical Committee, which will issue a recommendation on whether or not to approve it. The costs incurred by the community-based organizations or technical assistance providers for preparation of the project feasibility studies may be recognized under the program and covered by a flat fee per project.
- 3.27 The projects approved by the CDP will be included in the program operations programming and registered by the UCP. The executing agency will delegate to the UCP the authority to enter into a project execution agreement with the beneficiary organization and a community-based organization as co-executing agency that both organizations will agree to honor.
- 3.28 The UCP will keep records of all the proposals for productive projects submitted by applicant organizations. The list of projects submitted, indicating whether or not they were approved, will be made available to the public at the central and area offices of the program and the MAGA Departmental Coordination Offices.
- 3.29 Disbursements to cover technical assistance and physical inputs will be made by the program administrative agency, upon authorization by the UCP, pursuant to the contract signed and the execution plan approved, at the request of the community-based organization responsible. During the program execution period, the technical assistance will be provided by a technical assistance service provider selected by the beneficiary organization and agreed upon with the community-based organization. The latter will deliver the physical inputs to the beneficiaries for execution of the productive adjustment and/or conversion plans. Either the technical assistance provider or the community-based organization may certify satisfactory execution of the investment activities agreed upon for each project. Figure 1 shows a flow chart for the project selection, approval, and execution process.
- 3.30 **The Investment Regulations for execution of component 2** will detail the rules for the selection, approval, and execution of productive projects, the eligibility

criteria, beneficiary review, and coverage. The beneficiaries must meet the basic requirements described below.

- 3.31 Small and medium-sized producers living in watersheds and municipalities located in the program area of influence will be eligible to participate. For program purposes, this category will include producers personally and directly operating farms with a maximum surface area of seven hectares. Annexed to the Investment Regulations for component 2 is a listing of the watersheds, subwatersheds, and municipalities covered under the program, along with socioeconomic census data on the rural population in the program area, including land tenure.
- 3.32 The producers participating in a given productive project must be organized in groups in order to have the “modules” or minimum viable land areas needed for a system of production. This requirement is justified on efficiency grounds, to achieve economies of scale in the provision of technical assistance and to manage product marketing.
- 3.33 Financing for productive projects under the program may not exceed the equivalent of US\$2,500 per beneficiary family during the life of the program. This amount includes the cost of the technical assistance for production for each beneficiary family, plus the cost of the inputs for physical execution of the productive adjustment and/or conversion at the farm level.

FIGURE 1. PRODUCTIVE PROJECT CYCLE



E. Execution mechanism for component 3

- 3.34 **Module 1: vulnerability and risk management.** Applications for technical assistance and training to reduce environmental vulnerability and improve risk management, and for financing for small mitigation works may be submitted on the initiative of the respective municipal governments and rural communities. Priority will initially be assigned to requests from municipalities located in the six critical watersheds identified as environmentally fragile (see paragraphs 2.19 to 2.21) and that have prepared management plans. However, the CDP may also consider requests from other municipalities in the program area of influence, at its discretion.
- 3.35 **Module 2: valuation of environmental services.** This module will be carried out by the National Institute of Seismology, Vulcanology, Meteorology, and Hydrology (INSIVUMEH), with the participation of outside consultants. As part of program preparation, consultants will be selected to calibrate the model and design the system for monitoring and evaluation of water quality and flow, sediment conveyance, and other parameters to assess the impact of the management interventions on the parameters and to conduct an economic valuation of the environmental services and prepare proposals to develop instruments for payment of the services. As a special condition for execution of module 2 under component 3, an interagency agreement must be signed between MAGA and INSIVUMEH.

F. Monitoring, evaluation, and reporting

- 3.36 A system will be established for program monitoring and evaluation, for which the UCP will be responsible. The system will include the performance indicators referred to in the logical framework of the program, attached to this proposal as Annex I, and the data from the baseline information surveys and from the survey to be conducted upon program completion and described in section G, "Methodology for impact assessment". Based on the above-mentioned information, the executing agency will conduct two evaluations, a mid-term evaluation and a final evaluation, and will submit the respective reports to the Bank. The executing agency and the Bank will also hold annual meetings to review the progress being made on the program and the annual work plans, based on the performance indicators described below.
- 3.37 The monitoring system includes the information required on Bank project execution, for which periodic progress reports will be prepared and submitted. This detailed monitoring will be carried out by measuring to what extent the goals have been achieved and assessing progress in terms of both quality and quantity. The periodic reports will include the following information: (i) progress in physical and budget execution with respect to goals and activities for the hiring of consulting services, training events, and procurement of other goods and services; (ii) use of goods and services procured with program resources; (iii) performance indicators on approved projects for natural resource management, projects with a gender

approach and degree of participation by women in the process, and number and features of the community-based organizations participating with their own projects and as co-executing agencies; (iv) number of organized groups that have submitted proposals for productive projects; (v) number and membership of participating ethnic groups; and (vi) evaluation of fulfillment and verification of environmental requirements.

G. Methodology for impact assessment

- 3.38 Household surveys will be used to assess program impact. Two surveys will be conducted: the first one will be carried out upon program initiation and the data obtained will be used as the baseline. The second will be conducted upon program completion and the data obtained will be used to evaluate the program. The households will be selected randomly. Specialized consultants will be hired to design the survey and to prepare the terms of reference for its implementation. However, the surveys will include modules to obtain data on production costs at the farm level and income from both agricultural and nonagricultural production and to measure the distributional impact of the program and its impact on poverty reduction.
- 3.39 The program will have specific indicators to help measure its impact on poverty reduction and enhancing social equity. The terms of reference for implementation of the surveys will include those indicators (see Annex I, Logical framework).

H. Auditing

- 3.40 The program will be audited annually by a firm of independent auditors to be hired by the UCP according to terms of reference accepted by the Bank. The auditing firm will submit two reports: (i) a semiannual progress report, to be submitted 30 days after the end of each semiannual calendar period, that must include the following information: (i) status and use of the revolving fund; (ii) a review of disbursements, by sampling; and (iii) a review of the supporting documentation on the procurement of goods and services and the awarding of construction contracts; and (b) an annual report, to be submitted 120 days after the end of the executing agency's fiscal year, based on a review of: (i) the internal oversight structure of the program; (ii) fulfillment by the executing agency and co-executing agencies of the terms and conditions established in the loan contract; (iii) the supporting documentation on the goods and services procured using program resources, by sampling; (iv) the supporting documentation for disbursement requests, by sampling; (v) inspection visits to a sample of projects financed with program resources; and (iv) use of the revolving fund. The cost of the external auditing services will be charged to the Bank loan.
- 3.41 The auditors will also review the annual consolidated financial statements of the program, which will include a breakdown of the expenses incurred and

disbursements made by each co-executing agency. The annual statements will be submitted within 120 days after the end of each fiscal year.

I. Mechanism for transferring resources

- 3.42 Program resources will be transferred through replenishment of a revolving fund once expenses previously charged to the fund have been duly justified. The UCP will forward disbursement requests to the Bank. The revolving fund will be 5% of the amount of the program. This figure may be reviewed after the first year of execution and adjusted if necessary.

J. Procurement of goods and services

- 3.43 The procedures agreed upon with the Bank and set forth in the loan contract will be followed for the procurement of goods and related services and the awarding of contracts for consulting services and works to be financed with program resources.
- 3.44 International competitive bidding will be required for the procurement of goods and related services equal to or greater than US\$250,000 and construction contracts equal to or greater than US\$1.5 million. International calls for proposals will be required for consulting service contracts equal to or greater than US\$200,000. Procurement in amounts below those thresholds will be subject to the following procedures: (a) **open local competitive bidding or calls for proposals** for (i) works in amounts between US\$500,000 and US\$1.5 million; (ii) goods and related services between US\$50,000 and US\$250,000; and (iii) consulting services between US\$100,000 and US\$200,000; (b) **limited local bidding or calls for proposals** for (i) works in amounts between US\$20,000 and US\$500,000; (ii) goods and related services between US\$10,000 and US\$50,000; and (iii) consulting services between US\$1,000 and US\$100,000; and (c) **direct calls for bids** for (i) works in amounts below US\$20,000; (ii) goods and related services below US\$10,000; and (iii) consulting services below US\$1,000.
- 3.45 There will be no exceptions to Bank policy on procurement.

IV. FEASIBILITY AND RISKS

A. Technical feasibility

- 4.1 The program is considered technically feasible, based on the features of its design. Consultations and discussions carried out with producers in upper watersheds in several communities consistently showed that there is a lack of productive options or, more specifically, a lack of financial and managerial resources to implement them. This situation is preventing the producers from adopting environmentally sustainable systems with a higher return on their investments. Consequently, from a technical perspective, the strategy for natural resource management is based on research on and support for alternative production systems that will substantially improve rural family income while at the same time lead to better use of natural resources and prove environmentally sustainable.
- 4.2 The productive alternatives that make up the sample and were reviewed for the feasibility study meet the above-mentioned requirements. They also meet the condition of being based on validated technologies, not involving complex technical management on the part of the producers who will be the target population, having reasonably development marketing channels, and having technical assistance providers available to help implement the conversion projects.

B. Institutional feasibility

- 4.3 The institutional design of the program is feasible, since it involves existing institutions and is consistent with national sector policies. In addition, it is based on the socioeconomic characteristics of the rural population in the highlands of Guatemala, and recognizes traditional forms of community organization, which it will strengthen.
- 4.4 The institutional structure adopted includes the participation of civil society at the local and regional levels. It will support the development of a market for agricultural technical services and of community-based organizations. At the municipal level, it will promote the establishment of fora for participation by rural communities and municipal governments and will thus help develop municipal rural development boards.
- 4.5 Local institutions in Guatemala have already begun to participate in decision-making on issues affecting their economic and social development. A number of projects financed with aid from the international community share aspects of the institutional design for the proposed program, but with different focuses: for instance, the Cuchumatanes project financed by the International Fund for Agriculture in Development and the Dutch cooperation agency; PREAPAZ, which is being financed by the Canadian aid agency; the Alta Verapaz and Baja Verapaz

program supported by the GTZ; and the MIRNA program being prepared by the World Bank.

C. Socioeconomic and financial feasibility

- 4.6 The net benefits of the program will be achieved in the short and medium terms through its local, regional, and even national impact. The benefits of component 1 for the development of institutional instruments and local managerial capacity are broad and difficult to quantify, since the purpose of the component is to increase the social capital of rural communities. The benefits of component 3 will stem from both the valuation of the environmental services as a result of the interventions in watershed management and the investments in physical works and in training to reduce vulnerability to natural disasters. These benefits are also clear but difficult to quantify. Paragraph 4.21 lists some of the specific environmental benefits. The quantifiable financial benefits, that is, those connected with the increase in income as a result of the productive projects to be implemented demonstrated that the program is both socioeconomically feasible in terms of the national economy and financial feasible in terms of investments with private benefits (see summary cost and benefit table).
- 4.7 The beneficiaries of the productive projects to be carried out under component 2 will be small-scale or subsistence farmers with no access to formal credit and no savings to make the additional investments needed to transform their productive systems. Considering these constraints for the producers, the annual contributions in cash or in kind the producers would need to cover nonlabor costs to implement the new systems on their farms were calculated for a sample of eight productive activities. The financial analysis demonstrated that the rate of return on the proposed investments and increase in annual income for the beneficiaries will be very attractive. The average net income from the converted plots would increase from US\$140 in a without-project scenario to US\$700 by year five and US\$1,300 by year 10, once the increased in productivity have been consolidated.
- 4.8 Based on an economic analysis of the above-mentioned sample, the socioeconomic analysis demonstrated the social return on each of the proposed activities under component 2. The costs of the supporting services to be provided by the program were included in the calculations. Taking into account the size of the average farm, the availability of family labor, the unit cost of the new systems, and the potential increase in income, the surface area per intervention, depending on the activity, was calculated at between 0.42 hectare and 0.89 hectare, or less than one third of the arable land on the average farm targeted by the program.
- 4.9 The economic rate of return of component 2 as a whole will necessarily depend on community demand for productive projects. Accordingly, the list reviewed is only a sample. Since that demand cannot be determined beforehand, for purposes of the analysis, potential demand for the relative combination of investments was

projected, taking into account possible producer preferences, the individual returns on each activity, and the constraints with respect to market size and the agricultural and environmental features of the cropland. The analysis also took into account the high unemployment and underemployment rates in rural areas of Guatemala and labor costs were adjusted for the economic analysis, assigning a 50% shadow price for unskilled labor. The analysis showed an annual internal rate of return of 34% for component 2. Such a return is not surprising considering that a substantial part of the benefits will stem from producer access to prices and markets for nontraditional products for their farms.

Table IV-I Summary of Costs and Benefits						
Present values per beneficiary ⁽¹⁾						
Crop	Proposed area per beneficiary	Total cost ⁽²⁾	Program contribution ⁽⁴⁾	Total income	Net benefit	EIRR
	hectares		(2001 dollars)			%
Berries	0,42	3.526	1.601	7.760	4.234	50%
Peaches	0,50	4.809	1.944	11.308	6.499	31%
Avocado	0,50	2.751	1.384	11.644	8.893	40%
Organic coffee	0,89	8.718	1.440	13.863	5.145	19%
Honey		1.596	1.240	2.905	1.308	27%
Green beans ⁽³⁾	0,42	11.946	2.132	16.020	4.074	29%
S peas ⁽³⁾	0,42	13.181	2.175	16.873	3.692	26%
Broccoli ⁽³⁾	0,42	8.217	2.213	12.509	4.292	30%
Weighted average		5.548	1.615	11.152	5.604	34%

(1) These are present values with a 20-year horizon, discounted at an annual rate of 12% and valued at market prices, for production at the farm level in the program area of influence.

(2) Costs include labor, which may be provided by the beneficiary family or hired, and the costs of extension and training services.

(3) Rehabilitation of micro irrigation systems with short seasons (one season)

(4) Contributions in inputs, technical assistance, and training

4.10 The sensitivity analysis conducted showed that the proposed activities for component 2 were robust, maintaining an annual rate of return above 12%, even if the expected value of production drops between 15% for vegetables to 40% for fruit, either due to faulty production or prices. Even organic coffee production withstood a decline of up to 8% in the expected value of on-farm production.

4.11 The models for adjustment and/or conversion of production are profitable, as demonstrated in the analysis of the return on investment conducted for each alternative studied. However, government intervention is necessary to promote productive adjustment and/or conversion, despite the supporting financial and economic indicators. The justification can be summarized in the following points:

- a. Innovation will have positive externalities. Even when the technology packages have been tested, it is more difficult for small producers to adopt the technology because of the limited availability of reliable information. Helping producers make the change will have a multiplier effect in the communities. Moreover, the additional risk for the producers associated with early adoption of productive models does not translate into any additional benefits that would offset the cost associated with the higher risk for the private sector when there are market failures.
 - b. There are market failures for technical assistance and business services. Because of the low levels of education and training among the service users, compounded by the lack of information and the quality of the service providers, the market for technical and business services does not operate efficiently. Consequently, there is a lack of quality supply and demand for technical and managerial services for small producers.
 - c. There are failures in the market for credit for small producers who do not have assets they can use as collateral or any credit history. Although the adjustment options have a high economic return, the startup investments are considerable for the socioeconomic segment of the target population for the program. Thus, even if the producers could afford credit, they could not access it in the conventional financial system.
- 4.12 Other program benefits cannot be directly quantified, but are important and substantial, especially those stemming from an increase in the social capital of rural communities as a result of the activities to support local participation and organization.

D. Environmental and social feasibility

- 4.13 **Environmental feasibility.** The proposed operation is environmentally feasible since it was designed to promote the sustainable use of renewable natural resources. The program activities were therefore planned on the basis of technical factors with a view to improving the environment and the use of renewable natural resources in terms of sustainability, through the new production systems. This environmentally friendly approach is also consistent with the program objective of helping to increase the income of small producers in rural areas (paragraphs 1.28, 1.29, 2.1, 2.2, and 2.10). Accordingly, to be selected, the management systems to be supported under the program must be environmentally sustainable.
- 4.14 In the “without project” scenario, the main environmental problems for natural resource management concern conflicts in land use. There is currently a mismatch between actual use and potential use. The main impact of this situation identified is loss of environmental functions, such as accelerated erosion and increased sediment load, loss of fertility, deforestation, and degradation of the landscape and habitat.

- 4.15 **Potential environmental impact of the program.** The impact analysis was conducted by identifying the respective environmental impact, both positive and negative, of each activity and production alternative considered under the program.
- 4.16 **Component 1.** Although component 1 would not have any direct impact on natural resources, it is expected to enhance the implementation of measures to mitigate any adverse environmental impact. **Component 2.** This component will support projects to transform land use patterns from unsustainable systems that degrade the natural resource base to more productive, sustainable systems, including diversification into nonagricultural options. The respective activities will be: (i) introduction of forest species; (ii) soil conservation; (iii) introduction of organic fertilizers; (iv) introduction of improved crop varieties; and (v) integrated pest management.
- 4.17 Switching from annual crops without soil coverage to perennial crops will have a potential positive impact, the following of which have been identified, among other effects: (i) a decrease in surface runoff and soil erosion; (ii) improved water quality, which will also help stabilize the soil; and (iii) enhanced soil permeability and seepage capacity.
- 4.18 Inappropriate use of agrochemicals may have an adverse impact on the environment. The program will mitigate this impact through supervision and technical guidance to ensure that the pesticides used are approved by the MAGA Regulations and Standards Unit and by providing training and disseminating techniques for safe, rational use of pesticides. Program resources will be used (under component 1—see paragraphs 2.7-2.8) to train producer organizations and technical assistance service providers good practices for production and harvest management, through the adoption of integrated pest management techniques and safe product and waste management, in order to ensure product safety. The strategy adopted in the program design to provide technical assistance services through groups of organized producers will help ensure implementation of these practices.
- 4.19 The Investment Regulations include technical specifications for the environmental review by type of project. They also include environmental management rules for the selection of investments. For example, the new systems may not replace forest cover, perennial crops may not be replaced by annual crops, and projects to replace chemical inputs with organic ones will be promoted, as will projects that include activities to reduce post-harvest losses and to manage village woodlots.
- 4.20 **Component 3.** The activities under this component are designed to mitigate risk and reduce vulnerability to natural disasters, among other objectives. They are not expected to have any potential adverse environmental impact, and neither are the activities under model 2 for the assessment and valuation of environmental services.

- 4.21 Program execution is expected to yield the following environmental benefits in the program area: (i) an increase in soil fertility, leading to higher yields; (ii) soil stabilization and reduced erosion and downstream sediment deposit; (iii) less water pollution by toxic agrochemicals; (iv) improved (better regulated) flows in both the rainy season and the dry season; (v) increased seepage and improved aquifer recharge; and (vi) improved product quality and safety.
- 4.22 **Social feasibility.** The expected social impact of the program will be to support local community organizations, especially campesino and indigenous groups, and will help strengthen them.
- 4.23 The program incorporated social equity criteria in the selection of its geographical area of influence. It emphasizes participation by and consultation of the rural communities targeted, promotes the participation of indigenous communities, which represent a majority of the target population, and of women, considering that 30% of rural households in the program area are headed by women (the men having migrated or died or are absent for other reasons) and women would make decisions on participating in the program activities and projects. Accordingly, the program outreach activities will place special emphasis on encouraging women and young people to participate.
- 4.24 As part of its implementation strategy, the program takes into account the consequences of social exclusion and ethnic and gender marginalization endured by many communities, especially those with a high proportion of indigenous groups. An important part of the strategy is to make better use of the existing social capital at the local level by promoting participatory processes for the delivery of services and other support under the program and strengthening organization for production at the local level through the participation of community-based organizations in the project cycle for the preparation and execution of investments in production.
- 4.25 The UCP will implement a monitoring and evaluation system that includes the preparation and review of periodic progress reports and performance indicators for the productive projects for natural resource management, verifying that there are projects with a gender approach and a given proportion of women participating, along with the number and breakdown of the participating ethnic groups.

E. Risks

- 4.26 The main risk is associated with experience in program execution. The MAGA has recently experienced a degree of institutional instability, due to the three changes in its executive and managerial staff during the current administration. There is therefore some concern over what impact this instability might have on program execution. However, the participatory institutional design, which includes extensive interaction at the local level with the rural communities, producer associations, community-based organizations, NGOs, and local governments, will give the

program a broad-based institutional foundation and will ensure support from the target population, a prerequisite for efficient program execution.

- 4.27 Execution of the Bank's portfolio of projects in Guatemala is generally rated satisfactory. However, there have been some delays in the startup of certain projects, associated with fulfillment of the conditions precedent to disbursement. In order to reduce the time required for fulfillment of conditions precedent, the necessary technical details for program execution were agreed upon with the executing agency during program preparation.

LOGICAL FRAMEWORK

DESCRIPTIVE SUMMARY	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>Sustainable management of natural resources and improve living conditions for the inhabitants of upper watersheds.</p>	<p>Natural resources in upper watersheds are sustainably managed.</p> <p>Natural resources management plans are being implemented at the municipal level.</p> <p>Systems to reduce risk and mitigate natural disasters have been established at the municipal level.</p> <p>Environmental services provided for sustainable management of natural resources are recognized by society, and payment systems are in place.</p> <p>Rural family income increases.</p> <p>Rural poverty decreases.</p>	<p>Official data from the Central Bank, SEGEPLAN, and MAGA.</p> <p>Official figures from ENIGFAM obtained from multipurpose household surveys.</p> <p>Progress reports on implementation of natural resource management plans at the municipal level.</p> <p>Ex post evaluation of the program.</p>	
<p>Natural resource management in upper watersheds (above 1,200 meters elevation).</p>	<p>Upon program completion:</p> <p>Some 500 producers organizations and other local institutions involved on an ongoing basis in 70 (75%) of the program municipalities in activities for environmental management and execution of environmentally sustainable productive projects.</p>	<p>Baseline surveys and program impact evaluation.</p> <p>Annual progress reports under the program monitoring and evaluation system.</p> <p>Semiannual operations auditing reports.</p>	<p>No macroeconomic shocks could adversely affect the national economy.</p> <p>Macroeconomic policy is prudently managed.</p> <p>The national dialogue to accelerate economic growth and fight poverty leads to agreements.</p>

DESCRIPTIVE SUMMARY	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
	<p>60 municipalities, in association with municipal boards and rural communities included in the program, have agreed on plans and activities for sustainable management of natural resources.</p> <p>Sustainable agricultural and forestry systems of production introduced on 10,000 hectares, benefiting 13,000 family units with some 76,000 members.</p> <ul style="list-style-type: none"> • Average family income increase by over 100% in 5 years (from US\$670 to US\$1,400). • Nonagricultural productive activities provide employment for another 36,000 people with an average annual income of US\$650 per person employed. 	<p>Hydrological and meteorological network for monitoring in operation. Baseline critical watershed for monitoring implemented and mathematical model for quantification of cause-and-effect relationship in environmental factors calibrated and operational; physical, chemical, and biological parameters analyzed.</p> <p>Findings of model calibration applied to other watersheds; environmental benefits estimated.</p> <p>Final report on economic valuation of environmental services.</p>	

ITS

OBJECTIVE 1	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>1.1. Institutional instruments for natural resource management implemented</p> <p>1.2. Rural Development Coordination Unit and Departmental Coordination Offices strengthened</p> <p>1.3. Organizations trained in natural resource management</p> <p>1.4. For private provision of technical assistance for agriculture strengthened</p> <p>1.5. Monitoring and evaluation system operational</p>	<ul style="list-style-type: none"> • Training events held: technical staff of the 12 Departmental Coordination Offices trained • Local institutions in 70% of the municipalities covered under the program trained in participatory planning for natural resource management • Market for technical assistance services strengthened in its capacity to meet the needs of small producers in their plans for resource management and sustainable diversification of production 	<p>Periodic progress reports from the Monitoring and Evaluation Unit of the UCP.</p> <p>Periodic data on progress in program execution and impact on income, employment, production, and other relevant variables available.</p> <p>Bank supervision.</p> <p>Comparison between baseline study and final evaluation.</p>	<p>The government, through the ministries, maintains its support for development of municipal bodies and participation by rural communities in natural resource management</p>

DESCRIPTIVE SUMMARY	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>NT 2</p> <p>Investments for natural management carried out</p> <p>Agricultural and forestry systems of production introduced</p> <p>Cultural productive activities</p> <p>Plans for community implemented</p>	<ul style="list-style-type: none"> Sustainable agricultural and forestry systems of production introduced on 10,000 hectares for 13,000 producers and their families, who directly benefit from them At least 500 groups with management capacity benefiting from sustainable agricultural and forestry production 	<p>Periodic progress reports from UCP.</p> <p>Semiannual progress reports from MAGA to Bank.</p> <p>Evaluation reports from independent consultants.</p> <p>Bank supervision reports.</p> <p>Comparison between baseline study and final evaluation.</p>	<p>No unusual, unexpected events that substantially affect domestic or international demand for the products and services promoted by the project.</p>
<p>NT 3</p> <p>Management, reduction vulnerability, and environmental services for protection and mitigation of natural disasters in six critical watersheds and subwatersheds</p> <p>Monitoring, measuring, and environmental impact in the selected watersheds</p>	<p>75% of communities included in 6 priority watersheds organized to ensure risk management and disaster mitigation.</p> <p>At least 100 minor works to mitigate environmental vulnerability and reduce risk completed and operational.</p> <p>Technical evaluation of environmental services resulting from watershed management completed.</p> <p>Economic valuation of environmental benefits completed</p>	<p>Periodic progress reports from UCP.</p> <p>Final report on water resource monitoring plan.</p> <p>Study on economic valuation of environmental services.</p> <p>Evaluation report by independent consultants.</p> <p>Comparison between baseline study and final evaluation.</p>	<p>The priority assigned by the government for environmental protection and management of natural disasters is maintained.</p>

PROCUREMENT PLAN
(in thousands of US\$)

CATEGORY	Total amount	Type of procurement	Year 1	Year 2	Year 3	Year 4	Year 5
1. CONSULTING AND OTHER SERVICES							
Consulting services for content design and methodology for MAGA staff training	22.3	National	22.3				
Consulting services for MAGA staff training	24.5	National	17.0	7.5			
Consulting services for mid-term evaluation		National			40.0		
Consulting services for final evaluation		National					50.0
Consulting services to design training content and methodology	40.0	National	25.0	15.0			
Consulting services to design outreach	35.0	National	35.0				
Consulting services to ascertain capacity of community-based organizations and service providers	75.0	National	40.0	35.0			
Consulting services to strengthen local institutions (80)	1,260.0	National	190.0	250.0	275.0	275.0	270.0
Consulting services for baseline survey and final evaluation	150.0	National	75.0				75.0
Consulting services for mid-term environmental evaluation	75.0	National			75.0		
Annual financial auditing of program	200.0	National	40.0	40.0	40.0	40.0	40.0
Auditing of operations and execution (semiannual)	400.0	National	80.0	80.0	80.0	80.0	80.0
Economic evaluation of environmental services	50.0	National				50.0	
Environmental monitoring in pilot watershed (2)	100.0	National	50.0		50.0		
Administrative agency for finance and accounting	700.0	International	100.0	180.0	200.0	140.0	80.0
Technical support for information technology and computer equipment	192.0	International	40.0	38.0	38.0	38.0	38.0
2. GOODS							
Vehicles	363.0	International	363.0				
Motorcycles	52.5	National	52.5				
Computer and communications equipment	228.0	National	228.0				
Hydrological and meteorological instruments	212.0	International	212.0				
Furnishings	22.2	National	22.2				
3. MINOR CIVIL WORKS							
Minor civil works for watershed protection (approximately 100 works)	1,500.0	National	500.0	600.0	400.0		

NOTE: The procurement of goods and services and the awarding of contracts for construction of works and consulting services using program resources will be governed by the Bank procedures set forth in the loan contract.

PROPOSED RESOLUTION

GUATEMALA. LOAN No. ____/OC-GU TO THE REPUBLICA DE
GUATEMALA

(Program of Natural Resource Management in Upper Watersheds)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republica de Guatemala, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Program of Natural Resources Management in Upper Watersheds. Such financing will be for the amount of up to US\$40,000,000, from the resources of the Single Currency Facility of the Bank's Ordinary Capital, and will be subject to the "Financial Terms and Conditions" and the "Special Contractual Conditions" of the Executive Summary of the Loan Proposal.