PROJECT BRIEF

1. Identifiers:

Project Number:	PIMS 2223
Name of Project:	Promoting Integrated Ecosystem and Natural Resource Management in Honduras
Duration:	6 years
Funding Requested:	US $4,206,536
Implementing Agency:	UNDP
Executing Agency:	Ministry of Agriculture and Livestock
Requesting Country:	Honduras
GEF Focal Area:	Multi-focal (Biodiversity, Climate Change, Land Degradation)
GEF Programmes:	OP 12: Integrated Ecosystem Management

2. **Summary:** This project will contribute to the conservation of global environmental benefits in Honduras and Central America by promoting the incorporation of integrated ecosystem management in rural development projects operating throughout the region. This will be achieved through the dissemination of lessons learnt from the project's intervention in the IFAD-funded rural development project PRONADEL, whose activities the project will influence in 136 municipalities of Honduras; and through the funding of activities in support of global environmental values in two pilot areas within the area of influence of PRONADEL. The project's intervention in PRONADEL at national level will consist of the promotion of improved procedures for monitoring and evaluation, and for the evaluation of community-based initiatives proposed for financial support. In the two pilot areas (the Sico-Paulaya valley and the Texíguat River watershed), the project will facilitate integrated ecosystem and watershed management processes, provide training and strengthening to local stakeholders and institutions, and fund pilot projects to promote global environmental values. Modifications in the policy context, necessary for the threats to environmental values in the pilot areas to be addressed in a sustainable manner, will be achieved through the strengthening of local and national capacities for advocacy, and the participation of the UNDP Country Office as facilitator of national level dialogue. The two pilot areas selected will permit the project to address the OP12 themes of biodiversity, carbon stocks, land degradation and trans-boundary waters. The lessons learnt at pilot area and institutional levels will be replicated nationally through institutions including the Rural Development Directorate DINADERS within the SAG, whose capacities for the incorporation of environmental considerations the project will strengthen; and at Central American level through regional institutions and frameworks, especially the Mesoamerican Biological Corridor.

3. **Costs and Financing (US$)**:

Preparation	312,500
GEF	4,206,536
Co-funding (see below for details on sources)	39,364,468
Total costs (including preparation)	43,883,504
Total costs (excluding preparation)	43,571,004

4. **Associated Financing:** Baseline financing costed at US$ 107.35 million.

Details of Co-funding Sources	**US$**
IFAD	29,231,017
CABEI	4,968,908
Government of Honduras	429,213
Local communities	4,735,330

5. **Operational Focal Point Endorsement**:

Name: Patricia Panting
Title: Secretary of State with responsibility for Natural Resources and Environment
Organisation: Secretary of Natural Resources and Environment
Date: 15th November 2002.

6. **IA Contact**:
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LIST OF ACRONYMS

ACT	Análisis de Contexto Territorial (Territorial Context Analysis)
AFE-COHDEFOR	Autoridad Forestal del Estado – Corporación Hondureña de Desarrollo Forestal (State Forest Authority – Honduran Corporation for Forest Development)
AFH	Agenda Forestal Hondureña (Honduran Forestry Agenda)
ANAFAE	Asociación Nacional para la Promoción de la Agroecología (National Association for the Promotion of Agroecology)
CABEI	Central American Bank for Economic Integration
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza (Tropical Agricultural Centre for Research and Training)
CBD	Convention on Biological Diversity
CIDICCO	Centro Internacional de Información sobre Cultivos de Cobertura (International Center for Information on Cover Crops)
CISP	International Cooperation for People's Development
CITES	Convention on the International Trade in Endangered Species
CODESPA	Comité para el Desarrollo de Sico y Paulaya (Committee for the Development of Sico-Paulaya)
COMUS	Comité Multi-Sectorial para la Sequía (Multi-Sector Committee on Drought)
CONADES	Commission Nacional para el Desarrollo Sostenible (National Commission for Sustainable Development)
CUPROFOR	Centro de Utilización de Productos Forestales (Forest Products Utilization Center)
CURLA	Centro Universitario Regional del Litoral Atlántico (Regional University Center of the Atlantic Coast)
DAPVS	Departamento de Areas Protegidas y Vida Silvestre (Protected Areas and Wildlife Directorate)
DIBIO	Dirección de Biodiversidad (Biodiversity Directorate)
DICTA	Dirección de Ciencia y Tecnología Agrícola (Agricultural Science and Technology Directorate)
DINADERS	Dirección Nacional de Desarrollo Rural Sostenible (National Directorate of Sustainable Rural Development)
ENBRA	Estrategia Nacional de Biodiversidad (National Biodiversity Strategy and Action Plan)
ESNACIFOR	Escuela Nacional de Ciencias Forestales (National School of Forest Sciences)
EU	European Union
FCCC	Framework Convention on Climate Change
FONADERS	Fondo Nacional de Desarrollo Rural Sostenible (National Fund for Sustainable Rural Development)
GIS	Geographical Information System
GTZ	German Organization for Technical Cooperation
HDI	Human Development Index
IDB	Interamerican Development Bank

IEM	Integrated Ecosystem Management
IFAD	International Fund for Agricultural Development
INA	Instituto Nacional Agrario (National Agrarian Institute)
IUCN	International Union for the Conservation of Nature
LMDSA	Ley para la Modernización y Desarrollo del Sector Agrícola (Law for the Modernization and Development of the Agricultural Sector)
MAFOR	Proyecto de Manejo Forestal (Forestry Management Project)
MARENA	Proyecto de Manejo de Recursos Naturales en Cuencas Prioritarias (Natural Resource Management in Priority Watersheds Project)
MOPAWI	Moskitia Pawisa
OICH	Oficina de Implementación Conjunta de Honduras (Honduran Joint Implementation Office)
PDF	Proyecto de Desarrollo Forestal (Forestry Development Project)
PEMS	Plan Estratégico para el Manejo Sostenible del SINAPH (Strategic Plan for the Efficient and Sustainable Management of the SINAPH)
PESA	Proyecto Especial de Seguridad Alimentaria (Special Food Security Project)
PIU	Project Implementation Unit
PMES	Planning, Monitoring, Evaluation and Systematization
PRBRP	Proyecto Reserva de la Biosfera del Río Plátano (Río Plátano Biosphere Reserve Project)
PROBAP	Proyecto de Biodiversidad en Areas Protegidas Prioritarias (Biodiversity in Priority Protected Areas Project)
PRODERCO	Proyecto para el Desarrollo de la Región Centro Occidental (Project for the Development of the Central and Western Regions)
PRONADEL	Programa Nacional para el Desarrollo Local (National Programme for Local Development)
PRONADERS	Programa Nacional de Desarrollo Rural Sostenible (National Program of Sustainable Rural Development)
PRSP	Poverty Reduction Strategy Paper
RDF	Rural Development Fund
RDS-HN	Sustainable Development Network
REGAMH	Red de Gestión Ambiental de Honduras (Honduran Environmental Management Network)
REMBLAH	Red de Manejo del Bosque Latifoliado de Honduras (Honduran Broadleaved Forest Management Network)
RERURAL	Programa de Reactivación del Área Rural (Rural Area Reactivation Programme)
RPBR	Río Plátano Biosphere Reserve
RUTA	Regional Unit for Technical Assistance
SAG	Secretaría de Agricultura y Ganadería (Agriculture and Livestock Secretariat)
SAT	Sistema de Aprendizaje Tutorial (Tutorial Learning System)
SECPLAN	Secretaría de Planificación (Planning Ministry)
SERNA	Secretaría de Recursos Naturales y Ambiente (Natural Resources and Environment Secretariat)

SINAPH	Sistema Nacional de Areas Protegidas de Honduras (National System of Protected Areas of Honduras)
SIPSE	Sistema de Información, Planificación, Seguimiento y Evaluación (Information, Planning, Monitoring and Evaluation System)
SPPA	Sico-Paulaya Pilot Area
TPA	Texíguat Pilot Area
UMA	Unidad de Manejo Ambiental (Environmental Management Unit)
UNAH	Universidad Nacional Autónoma de Honduras (National Autonomous University of Honduras)
UPEG	Unidad de Planificación, Evaluación y Gestión (Planning, Evaluation and Management Unit)
WWF	World Wildlife Fund

1. COUNTRY OWNERSHIP

a) Country Eligibility

1. Honduras ratified the Convention on Biological Diversity on the 21st February of 1995 (Decree number 30-95, published in the official publication La Gaceta on 10th June 1995); the UN Framework Convention on Climate Change on 19th October 1995 and the UN Convention to Combat Desertification on 25th June 1997.

b) Country Drivenness

1 b i. International Conventions to which Honduras is Signatory

2. Honduras is signatory to the following international conventions of relevance to integrated ecosystem management:

i) *Convention on the International Trade in Endangered Species* (CITES): Decree Number 771 of 1979.
ii) *Convention for the Conservation of Biodiversity and the Protection of Priority Wild Areas in Central America*: Decree Number 183-94 of 15th December 1994.
iii) *Framework Convention on Climate Change*: Decree Number 26-95 of 14th February 1995.
iv) *Convention on Biological Diversity*: Decree Number 30-95 of 10th June 1995.
v) *Regional Convention on Climate Change*: Decree Number 111-96 of 30th July 1996.
vi) *Convention on Combat of Desertification in Countries Affected by Serious Drought or Desertification, especially in Africa*: Decree Number 35-97 of 28th April 1997.
vii) *Kyoto Protocol on FCCC*: Decree Number 37-2000 of 17th March 2000.

3. The project's activities in increasing the woody perennial component in natural ecosystems and agroecosystems, and promoting the use of clean energy sources including hydro-energy will contribute to Honduras' meeting its commitments to the FCCC. The project will contribute to the conservation of globally important biodiversity at both species and ecosystem level, in accordance with the country's commitments under the CBD. The focus on sound land management in one of the driest and most degraded areas of Central America is compatible with Honduras' commitments under the Convention on the Combat of Desertification.

1 b ii. National Strategies and Sector Plans

4. The project is compatible with national strategies and sector policies in its emphasis on the sustainable management of natural resources through an integrated approach. Specifically, agricultural policy, as expressed in the Law for the Modernization and Development of the Agricultural Sector (LMDSA), aims to bridge inter-sector divisions, making agricultural development compatible with conservation and the sound management of natural resources, environmental protection and ecological equilibrium; rural development policy, as expressed in the Law for Sustainable Rural Development, aims to contribute to the improvement of the quality of life in rural

communities through human, social, environmental and productive development, based on community participation and the sustainable management of natural resources, using the watershed as the principal unit of planning; and commitment to the watershed concept is expressed in various instruments including the Action Plan for Environment and Development (PAAD) of the Environment and Natural Resources Secretariat (SERNA), the AFE-COHDEFOR's forest policy document, and the Master Plan for Reconstruction and Transformation formulated after Hurricane/Tropical Storm Mitch.

5. The commitment of the Honduran Government to the sustainable management of the Río Plátano Biosphere Reserve, with which the Sico-Paulaya valley overlaps and to whose protection the sound management of natural resources in the valley is crucial, has been confirmed through its declaration of the RBPR as a national park and the Government's subsequent successful nomination of the reserve for inclusion by UNESCO as a World Heritage Site. The dry south is of high priority for the Government, due to its vulnerability to repeated droughts, as confirmed by the request by the Executive Director of the National Directorate for Sustainable Rural Development (DINADERS) for the GEF project to modify its geographical focus to include this area in its activities in support of sustainable integrated watershed management. The importance to the Honduran Government of addressing the problem of drought in the south of the country is further confirmed by the recent formation of the Multi-Sector Committee on Drought (COMUS), based in the SAG, which promotes and coordinates activities at government and NGO level in drought-affected municipalities. The south of Honduras, including the Texíguat pilot area, is classified by COMUS in its Strategic Plan for Drought as the highest level "Category 1" in terms of its vulnerability to drought.

6. The project is highly compatible with the proposals contained in the SERNA's National Biodiversity Strategy and Action Plan, especially in relation to the following thematic areas proposed in that document:

- *Sustainable use of biological diversity:* Promotion of the conservation of biological diversity through the sustainable use of its components (see Activities 2.5.3, 2.5.4 and 2.5.5);
- *Research and training*: Promote and strengthen scientific research in order to generate knowledge and promote the conservation of the different components of biological diversity, based on national research priorities, which permit the orientation and achievement of a sustainable use of natural resources (see e.g. Activities 2.4.1 and 2.4.4);
- *Environmental licensing*: Make effective processes, technologies and methodologies aimed at preventing and mitigating the adverse impacts of projects which may harm the environment (see Output 1.1)
- *Land use planning*: Making better use of national territory based on territorial and environmental land use planning which orients and regulates the sustainable management of natural resources and zones of high risk (see Output 2.1)
- *Information interchange*: Promote the development of integral programmes for the interchange of information which permits decision making based on the current reality, with relation to biological diversity, and which provides the means to facilitate access to data and information (see Activities 2.3.4 and 2.4.1).

7. In addition, the project will contribute to the following strategic axes of the SAG's Planning, Evaluation and Management Unit (UPEG):

- Sustainable management of natural resources.
- Productive transformation and diversification.
- Institutional strengthening
- Technology generation and training.

c) Endorsement

8. The GEF focal point in Honduras is the Minister of Natural Resources and Environment, an endorsement letter from whom, dated 15th November 2002, is presented in Annex B.

2. PROGRAM & POLICY CONFORMITY

a) Program Designation & Conformity

9. The **Development Objective** of the project is to ensure that "multiple global environmental benefits are achieved through mainstreaming of Integrated Ecosystem Management (IEM) principles into productive rural development projects in Honduras and Central America". Its **Objective** is to ensure that "multiple global environmental benefits have been achieved in the entire area of influence of PRONADEL by the integration of IEM principles into this development project´s operational procedures, following the successful demonstration, validation and dissemination of experiences of this approach attained in two pilot areas". As such, the project is highly compatible with the OP12 aim of providing "a comprehensive framework to manage natural systems across sectors, and political or administrative boundaries within the context of sustainable development".

10. The choice of pilot areas allows the project to address the three main themes mentioned in OP12 guidance, namely Biodiversity, Climate Change and International Waters, as well as Land Degradation. It will achieve significant direct global benefits within two pilot areas, in which global environmental values currently face extreme levels of threat. In addition, its demonstrative aspect will lead to global benefits on a regional level, through replication of lessons learnt regarding the integration of OP12 themes into rural development projects. This catalytic nature of the project, and its insertion into an existing rural development project, will maximize cost-efficiency.

11. In conformance with the new strategic priorities of GEF, the project will be innovative in promoting the mainstreaming of environmental considerations into the agricultural sector, specifically in the strategies, activities and operative instruments of a rural development project which provides financial and technical support to productive activities in rural communities.

b) Project Design

12. **Strategic decisions on project design and formulation.** Details on staff requirements, terms of reference and the internal and external organizational structure of

the project are presented in Annex Q. The duration of the project will be 6 years. During the first four years it will overlap with the period of implementation of PRONADEL (whose lending activities the project will directly influence); an additional two years beyond this point are necessary in order to ensure sustainability. The project will be located principally within the agricultural ministry SAG, given its core theme of influencing the practices or rural development projects, which in Honduras are coordinated by SAG/DINADERS; however there will be close links with, and involvement by, the environmental ministry SERNA in its implementation. The core team of the project will be based initially in the offices of PRONADEL, but after 2 years the Coordinator will move to SAG/DINADERS in order to permit more effective dissemination and lobbying support based on lessons learnt, but will also provide support to SERNA. In addition, field staff will operate in two pilot areas of high environmental priority within the area of influence of PRONADEL.

13. The project will work at a number of levels:

i) Pilot areas, in which the approach of integrated ecosystem management will be validated and demonstrated, at the same time achieving significant benefits in terms of the conservation of global environmental values.
ii) The PRONADEL project, with which this project will work to ensure the mainstreaming of environmental criteria and mechanisms into its operations at national level.
iii) Programme level, promoting the replication of lessons learnt and the incorporation of environmental considerations into rural development projects through the National Program for Sustainable Development PRONADERS.
iv) Ministerial level, supporting lobbying for the creation of a context of policies and laws favorable to the incorporation of integrated management and conservation at national level.
v) Regional (Central American) level, disseminating the lessons learnt in this project to governments, donors and rural development project throughout the region.

14. This will be achieved through simple lines of authority and communication between the different levels.

15. **Pilot area selection criteria.** Intervention in the Sico-Paulaya Pilot Area (SPPA) is of crucial importance for reducing threats to the western boundary of the globally important Río Plátano Biosphere Reserve (RPBR), included in UNESCO's Man and the Biosphere Programme in 1980, including ranching, slash and burn agriculture, and illegal logging. The RPBR is one of the largest remaining intact areas of forest in Central America, with very high biodiversity at both ecosystem and species level, and represents a major carbon sink. It provides the opportunity to generate lessons on how to work, in conjunction with a rural development project, in a conflictive buffer zone with high stakeholder diversity, limited governance conditions and strong short term economic motivations for resource degradation. The area has high replication potential, as its socioeconomic and biophysical conditions have much in common with other major protected areas in the Central America humid forest zone such as the Maya Man and the Biosphere Reserve in the Guatemalan Petén region, the Indio Maíz Reserve in southern Nicaragua and the Darien in Panama.

16. The dry south of Honduras, of which the Texíguat Pilot Area (TPA) provides a prime example, has for long been characterized by population expulsion as a result of land degradation. The inclusion of this pilot area allows the project to address both the "pull" factors and the root "push" factors which place demographic land use pressure on globally important sites such as the RPBR and, specifically, to learn and demonstrate how to tackle land degradation issues in a productive area on which thousands of poor farmers depend for their livelihoods. The lessons learnt here have high replication potential to similar areas in the dry zones of eastern Guatemala, El Salvador, western Nicaragua and (to a lesser extent) western Costa Rica. The area also contains important endemic species maintained "*circa situm*[1]" in agroecosystems. As such, it provides an opportunity to learn and demonstrate how a rural development project such as PRONADEL should respond to important biodiversity components it may encounter in any part of its area of influence, even undervalued agroecosystems outside of protected areas.

2 b i ***Sector issues, root causes, threats and barriers affecting the global environment***

17. **National human development baseline.** Honduras has a very low level of human development, occupying position 116 out of 173 countries in terms of the Human Development Index (HDI) calculated by UNDP (2000). Human development levels have shown only weak recovery from the effects of Hurricane/Tropical Storm Mitch in 1998. Women remain marginalized from decision making at a political level, as indicated by a Gender Potentiality Index of 0.405 (number 60 out of 66 countries) (UNDP, 2002).

18. High population growth rates contribute significantly to pressures on the available natural resources. The country's population has grown from around 4.9 million inhabitants in 1991 to around 5.8 in 1998; with a population growth rate of around 3%, the population is predicted to increase to around 9 million by 2010 (Vreugdenhil *et al.*, 2002).

19. Del Cid *et al.* (1988) identify two principal poles of poverty in the country: the west is the zone of most entrenched poverty, linked to ethnic discrimination and marginalization from land ownership; while the agricultural frontier, mostly in the north and east of the country, is characterized as a zone of "transient poverty" largely due to a lack of basic services and infrastructure.

20. **National environment and biodiversity baseline.** The country has a surprisingly high biodiversity for its size, due to its variety of climatic and topographical conditions. According to the National Biodiversity Strategy and Action Plan (SERNA/DIBIO, 2001) there are 7,524 plant species registered in Honduras of which 148 are considered endemic or of limited distribution and 35 are considered threatened. The latest national birdlist counts 718 species, of which 59 are nationally threatened and 5 are on the IUCN endangered species list (including the only nationally endemic bird in Central America *Amazalia lucidae*); there are 228 mammal species including 3 endemics and 19 threatened species; 210 species of reptiles including 15 endemic lizards; and 111 amphibians including 36 endemics (Vreugdenhil *et al.*, 2002; SERNA/DIBIO, 2001).

[1] Within the species natural range but under ecological conditions altered from the natural state.

21. The Ecosystems Map of Honduras (AFE-COHDEFOR, 2002) shows that around 49% of the country is still covered with natural ecosystems. Deforestation rates have been very high in the last few decades: the national coverage of forests and woodlands declined from 46,000 km^2 in to 31,000 km^2 in the twenty years from 1968 to 1988, representing a loss of 14.5%, with a mean annual rate of deforestation in the 1980s of 2.3% (UNESCO 1991-2).

22. Honduras faces severe problems of land degradation over much of its area. These result from a combination of the deforestation described above, the fragile nature of its soils, and the nature of post-clearance land uses. Despite having a much lower overall population density than, for example, its smaller neighbour El Salvador, more than 60% of its surface area slopes at more than 40%; another difference from its neighbours is that its soils do not benefit from periodic fertility enrichment by volcanic ash. As a result, little more than 30% of its surface area is suitable for agriculture.

23. **National policy and legislative context.** Although in Honduras economic growth has historically been promoted at the expense of environmental considerations, current policy and legislative instruments indicate that the Government recognizes and promotes the conservation of natural resources and biodiversity, integrated with sustainable rural development and based on local participation and watershed-level planning. The 1992 Law for the Modernization and Development of the Agricultural Sector (LMDSA), for example, returned forest ownership to private hands and promoted a model of sustainable use according to management plans supervised by the State; while key issues stressed in the new forestry law, currently under formulation, will be community participation in forest management and the usufruct rights of communities on state-owned forest land. The conservation of protected areas and increased social participation in natural resource management are also stressed in the Forestry, Protected Areas and Wildlife Policy and the Forestry Plan PLANFOR (1996-2015). Vreugdenhil *et al.* (2002) note an increased interest at political level in Honduras in the conservation of wild areas, as expressed by the previous two administrations and confirmed by the new administration of President Maduro. A particular motivation for this interest is the economic potential of tourism, which has risen to occupy the second position as foreign trade earner, with 475,000 travelers entering the country and an income US$256 million in 2001. There is explicit commitment to biodiversity conservation in the 2001 National Biodiversity Strategy and Action Plan (ENBRA), whose strategic programmes stress both *in situ* and *ex situ* conservation and the equitable distribution of the benefits of conservation.

24. The national policy context is characterized by a sector-based approach, which has substituted earlier efforts at regional-level development planning. This is reflected in the existence of separate planning units in sector ministries and semi-autonomous entities, instead of a central planning body (such as the now disappeared SECPLAN). However the LMDSA of 1992 aimed to bridge inter-sector divisions, making agricultural development compatible with conservation and the sound management of natural resources, environmental protection and ecological equilibrium (Articles 3 and 4, Decree 31-92).

25. The principal instruments for environmental regulation are the General Environmental Law (1993), which provides for a national system of environmental impact assessment for activities likely to damage the environment; and the LMDSA and

various laws relating to the forestry sector, such as the 1985 Forestry Law. Environmental regulation is, however, concentrated in operatively weak ministries (such as the environmental ministry SERNA) and semi-autonomous bodies (such as the state forest authority AFE-COHDEFOR). Both the Municipalities Law of 1990 and the document of the National System of Protected Areas (Chapter II, Articles 35-40) provide for the decentralization of the control and management of natural resources to the municipality level; however to date there has in practice been limited development of local roles in regulation.

26. The need to incorporate environmental concerns into productive activities is recognized in, for example, the Agricultural Plan for Rural Development (1995-1998) and the New Agricultural Agenda (1998-2002), which emphasize as priorities the efficient use of irrigation and the reduction of soil degradation.

27. The link between sound natural resource management link and sustainable rural development is expressed in the 2000 Law for Sustainable Rural Development (LSRD), which established the National Programme for Sustainable Rural Development (PRONADERS). This has the objective of "contributing to the improvement of the quality of life in rural communities through human, social, environmental and productive development, based on community participation and the sustainable management of natural resources". The country's Poverty Reduction Strategy Paper (PRSP), approved in 2001, includes in its programme areas the reduction of poverty in rural areas, increasing access to and use of natural resources and improving environmental protection and risk management.

28. The LSRD also recognizes the watershed as the principal unit of planning, a concept which is reflected in a number of other policy documents, including the Action Plan for Environment and Development (PAAD) of the Environment and Natural Resources Secretariat (SERNA) and the AFE-COHDEFOR's forest policy document; this proposes to "adopt the hydrographic watershed, sub-watershed or micro-watershed as a geographical unit for the planning and programming of integrated forest resource and protected areas management". Watershed management received added impetus as a result of the damage caused by Hurricane/Tropical Storm Mitch in 1998. With the objective of establishing the bases for a national watershed management policy, the SERNA (with technical and financial support from the Canadian Government) is coordinating the preparation of a "National Watershed Strategy", in association with AFE-COHDEFOR, UPEG/SAG and ESNACIFOR.

29. **National institutional context.** Head of the environmental and natural resources sector, and GEF focal point in Honduras, is the Natural Resources and Environment Secretariat (SERNA). This includes the National Irrigation Directorate, the Biodiversity Directorate (DIBIO) and the Environmental Management Directorate (DGA). SERNA is responsible, *inter alia*, for the formulation of environmental policy, the proposal and declaration of protected areas, the regulation of the use of natural resources and biodiversity, the strengthening of capacity for environmental management and control at municipal level, and territorial land use planning.

30. The Ministry of Agriculture and Livestock (SAG) is the lead institution in the area of rural development; it executes rural development activities, through a series of

projects, with the framework of the National Programme for Sustainable Rural Development (PRONADERS), whose operative and financial arms are, respectively, DINADERS and the National Fund for Sustainable Rural Development FONADERS. In addition, through the Agricultural Science and Technology Directorate (DICTA), the SAG is responsible for coordinating agricultural research and technology transfer.

31. The State Forestry Authority - Honduran Corporation for Forestry Development (AFE– COHDEFOR) is the decentralized body, attached to the SAG, responsible for regulation of the use and management of trees and forests. It is also, through its Department of Protected Areas and Wildlife (DAPVS), responsible for the management of protected areas and the control and regulation of the management and use of wildlife.

32. The National Agrarian Institute (INA) is responsible for overseeing the process of agrarian reform initiated under the agrarian reform laws of the 1960s and 1970s, and specifically for titling land under the provisions of those laws and the LMDSA. In addition, it provides technical and organizational support to members of legally constituted *campesino* groups which have received land titles under its auspices.

33. At local level, responsibilities for environmental regulation and control were devolved under the Municipalities Law of 1990 to municipal authorities, each of which is obliged to establish an Environmental Management Unit (UMA). In addition, a number of national level dependencies have local and regional level offices, including AFE-COHDEFOR (at Forest Region and Forest Management Unit level) and SAG/DINADERS (Regional Facilitation Centres and the local offices of rural development projects).

34. **Project context (PRONADEL).** The project will work closely with the National Programme for Local Development (PRONADEL). This is a rural development project, jointly funded by the International Fund for Agricultural Development (IFAD) and the Central American Bank for Economic Integration (CABEI). PRONADEL began operations in October 2001[2], replacing and expanding the earlier IFAD-funded project National Fund for Sustainable Rural Development (FONADERS[3]). It is the largest of the rural development projects supported by IFAD in Honduras, with an overall value of US$57.2 million. Its geographical coverage has been reduced from and original 136 municipalities to 77, on the basis of recommendations of review missions by RUTA and IFAD in late 2002.

35. In 30 of its target municipalities, PRONADEL has applied an alternative approach, with support from DINADERS, on the basis of the recommendations of the IFAD/RUTA review missions of 2002. This pilot experience places increased emphasis on considerations of: local management of processes; territorial-level intervention; complementarity between institutions; phased entry; facilitation of local development processes and participatory strategic planning. In the logistically-difficult Mosquitia area, PRONADEL is considering an approach of co-execution governed by agreements with other development projects and institutions, including the WWF and the GTZ/AFE-COHDEFOR Río Plátano Biosphere Reserve Project.

[2] Under IFAD loan agreement 560-HN (25th May 2001)

[3] Also known as FONADERS-FIDA to distinguish it from the national FONADERS, one of the two executive arms of PRONADERS

36. Further organizational, administrative and operational details regarding PRONADEL are presented in Annex M.

37. **Threats to Global Environmental values, and Root and Underlying Causes.** The project will directly address threats to global environmental values in the two pilot areas, and will indirectly reduce threats to global environmental values at national (and regional) level through the mainstreaming of environmental considerations throughout PRONADEL's operations, and the replication of lessons learnt within PRONADEL and other development projects.

38. ***National and regional level.*** Throughout Honduras and the rest of Central America, global environmental values are threatened by processes of deforestation, soil erosion, depletion and contamination of hydrological resources, and degradation of biodiversity at ecosystem, population and species levels. Inappropriate interventions by rural development projects in many cases contribute to these threats.

39. *Promotion of productivity at the expense of environmental and rural development considerations.* Policies of central Government and lending agencies such as IFAD, while recognizing the importance of environmental protection, are strongly focused in favour of the promotion of agricultural productivity, in order to stimulate economic growth, redress the balance of payments, and promote food security. There is a significant risk that this emphasis will lead to the neglect of considerations of global benefits, natural resource capital of long term local importance, and sustainable rural development. This is compounded by the *political pressures* to which projects such as PRONADEL are commonly subjected to demonstrate significant levels of execution, defined in terms of activities and expenditure more than long term impacts.

40. *Inadequate environmental review of productive projects.* Linked to and compounding the above is the technical and operational weakness of the mechanisms currently in place for evaluating, monitoring and mitigating the environmental implications of productive activities supported by projects such as PRONADEL. Environmental evaluation tends to be considered as an "add-on" rather than being truly mainstreamed. This is due to a lack of true commitment to environmental considerations, coupled with the professional profiles of project staff which tend to emphasis technical expertise focused on production.

41. ***Sico-Paulaya Pilot Area.*** The cause and effect relationships between underlying and root causes and threats to global benefits in the SPPA are summarized in Annex I i. Between 1995 and 2001, these threats described below led to the loss of 19,575ha (12%) of the forest in the SPPA, equivalent to an average annual rate of 3,262ha. The distribution of this loss between the different parts of the SPPA is shown in Table 2. Forest cover in 1995 and 2001 is contrasted in Maps 11 and 12 of Annex U i, and the locations of the most critical areas in the SPPA in terms of the processes affecting global environmental values there are shown in Map 10 of the same Annex.

Table 2: Summary of threats and predicted baseline trends

Zone	Principal Threats	Loss 1995-2001		Annual loss (ha)	Changes in threats during project period
		ha	%		
1. Delta	- Clearance to	1,120	38.5	187	- Cessation of

	avoid expropriation				campesino settlement
2. *Campesino* areas	- Cattle ranching - Agriculture	4,332	30.6	722	- Cessation of campesino settlement
3. "*La brecha*"	- Road construction - Cattle ranching - Smallholder agriculture	1,226	18.2	204	- Cessation of road construction
4. Los Mangos corridor	- Extensive cattle ranching - Smallholder agriculture	636	11.1	106	- None
5. RPBR Buffer Zone	- Extensive cattle ranching - Smallholder agriculture	7,475	10.3	1,246	- GTZ support to ranching intensification - Attraction by infrastructure development
6. Sierra Río Tinto	- Smallholder agriculture	301	1.6	50	- None

(Source: Landsat TM images 1749 and 1849 (1995 and 2001) provided by PBRP and analysed by P.R. House).

42. *Extensive cattle ranching in the RPBR buffer zone and Los Mangos corridor.* The principal threat to global environmental values in the Sico-Paulaya area is the clearance of forest for extensive cattle ranching. This is causing deforestation along a number of valleys leading east and southeast from the main Paulaya valley into the buffer zone of the RPBR, and threatening the Los Mangos biological corridor which connects the forests of the Sierra Río Tinto cordillera with those of the RPBR buffer zone (Map 10, Annex U i).

43. Extensive ranching is principally based on the fattening of animals brought in from Olancho and subsequently exported on the hoof for sale as beef in the towns and cities of the north coast. The profitability of this activity is increased by a favourable incentive and regulatory environment in the livestock sector and the existence of ample markets for beef. Those involved are largely recent immigrants from the neighbouring Olancho department, motivated both by the area's fertility for cattle production and the prospects of land speculation based on the acquisition and subsequent sale of *de facto* tenure rights. This tenure market has no legal basis, as the land in question is classified as national forest land and, as such, inalienable; however the opportunities that exist to stake *de facto* claim, at little or no cost, to this open access land, and the high profitability of cattle grazing on the land once cleared, mean that this market is in practice very real. The resale value of these *de facto* rights is likely to increase due to prospects of increasing infrastructural and social investment in the area.

44. The ease and low cost of obtaining and clearing national land in the buffer zone is due to the inadequate application of regulations to the contrary, and the open access nature of the resource, which is a function of its public tenure and the lack of tenure or usufruct rights, or organizational capacity, on the part of its dispersed inhabitants to counter encroachments by external interests. The lack of effective regulation and policies to the contrary may be interpreted as a *tacit policy* of allowing the expansion of medium and large scale ranchers in agricultural frontier areas.

45. More environmentally benign alternatives to extensive ranching, such as dairy farming, are currently limited by the inadequate road access which restricts market access; however the willingness of those involved in extensive ranching and land speculation to change to such alternatives is also, more significantly, limited by the profitability and lack of regulation of these activities. The lack of effective regulation of forest clearance for extensive cattle ranching is largely a result of the ineffective operation of the judicial system, a problem which is discussed further below with reference to illegal logging.

46. Pressures from cattle ranchers on the RPBR buffer zone are also exacerbated by limitations on their options for expansion elsewhere in the valley, principally as a result of the territoriality of *campesino* groups granted land on the west side of the valley (outside of the buffer zone) during the 1990s.

47. Under the baseline scenario, threats from extensive cattle ranching are likely to be mitigated by the activities of the GTZ-funded Río Plátano Biosphere Reserve Project, which is providing financial incentives and usufruct rights to cattle ranchers in the buffer zone, in exchange for intensification and stabilization. This is likely to slow the rate of deforestation in this area, though its effectiveness is likely to be constrained by the limited duration of the project, the difficulty of monitoring and regulation, and the continued attractiveness of ranching relative to the incentives offered. Unless complemented by modifications in conditions of regulation, governance and incentives, there is a risk that other actors will simply "leapfrog" the zone of intensification and carry their extensive ranching activities deeper into the reserve.

48. Another important factor which may mitigate baseline threats such as cattle ranching and illegal logging (see below), whose prevalence is largely due to inadequate conditions of regulation and governance, is the emergence during the last 1-2 years of a number of organizational entities which have facilitated dialogue between diverse stakeholder groups and reflection on the area's problems and potential. Notable among these is the Committee for the Development of Sico-Paulaya (CODESPA) and the Committee for the Limitation of Settlement along the "*Brecha*". Improvements in access, meanwhile, are likely to lead to increased levels of presence on the part of State institutions and therefore improved technical and organizational support and regulation.

49. *Shifting agriculture in the RPBR buffer zone and Los Mangos corridor.* Shifting slash and burn agriculture in the RPBR buffer zone and Los Mangos corridor is closely linked to the extensive cattle ranching described above. In many cases, small farmers are at the vanguard of the advance of pastures, clearing forests for a few years' use at most before the area is taken over by ranchers. As with extensive cattle ranching, the prevalence of this phenomenon is due to the inadequate application of regulations to the contrary, and the open access nature of the resource, which is a function of its public tenure and the lack of tenure or usufruct rights, or organizational capacity, on the part of its dispersed inhabitants to counter encroachments by external interests. The existence of these conditions could again be interpreted as a tacit policy to permit this process.

50. Those responsible for this form of farming are largely new immigrants, typically from depressed rural areas in the north and west of the country, attracted to the area by the prospect of free land and soil fertility. The expulsion pressures which have driven

these immigrants to move to the agricultural frontier include population growth, marginalization from access to basic services, infrastructure and land, and the vulnerability of agricultural production to fluctuations in climatic conditions. The marginalization of these expulsion zones is a result of an implicit policy preferentially to concentrate productive and infrastructural investment in urban areas, where the concentrated nature of the population makes the provision of infrastructure and basic services less expensive.

51. Shifting agriculture is also occurring outside of these two areas, for example (as revealed by an over-flight) within the nationally-owned forests of the Sierra Río Tinto on the western side of the valley. However here it is limited in scale, due largely to the territorial defense of these forests by the *campesino* groups who (while not owning them) rely on them for water supply. These groups are currently lobbying DAPVS and DIBIO to have the Sierra Río Tinto declared a national park.

52. Investments by the RPBR project in the provision of technical support to inhabitants of the reserve to promote the diversification and stabilization of agricultural production, including the cultivation of organic cocoa and coffee, has principally been concentrated in the southern and eastern parts of the reserve, rather than the SPPA.

53. Improvements in access to the valley during the last few years are likely to stimulate further immigration during the project period and exacerbate pressures on global environmental values from shifting agriculture. In addition to directly facilitating the entry of new immigrants, improved access will make it easier for institutions to invest in infrastructure and production, and will improve market access, both of which factors which will increase the area's attractiveness to immigrants[4].

54. Despite the recent construction of a new access road (the "*brecha*"), production remains limited due to the fact that the access is still unreliable and little institutional support (in the form of technical assistance and credit) is as yet available. The next 5 years, however, are likely to be of key importance and will see significant developments with regards to all of these factors. A particularly important element will be the entry of PRONADEL into the area. This provides an opportunity to promote the diversification and stabilization of production systems, making them more compatible with sustainable resource use; however, unless accompanied by investment in the social and human capital required for adequate planning and regulation, there is also a risk that it will stimulate practices which, directly, or indirectly, contribute to the degradation of the global environmental values of the RPBR.

55. Many of the new immigrants may be from the service sector or, initially at least, focus their activities on the fertile valley areas. However it is likely that there will be a significant spin off of population which will engage in swidden farming at the agricultural frontier, causing increased pressure on the RPBR. The entry of new outsiders to the area may undermine the already minimal conditions of governance in the area and further reduce the possibilities of regulation of growing pressures on natural resources.

[4] Thousands of *campesino* families migrated to the area during the period of induced settlement in the mid-1990s, despite the lack of access; however, due to the difficult conditions the majority left again after a short period.

56. In addition to immigration, pressures on resources will be exacerbated by reproductive population growth. The 1997 census carried out by the RBRP Project showed that the areas has a very young population (52.2% of males are less than 16 years old and 56.6% of females), suggesting high levels of reproductive population growth, in addition to immigration. This situation will place pressures on the existing farming systems (for example those of the *campesino* groups) and are likely to lead to migrations; some may be rural-urban, but there is also a risk that the "surplus" population will head to the agricultural frontier to carry out ranching and farming with significant impacts on the RPBR. The relative importance of this rural-urban and rural-rural migration is difficult to predict.

57. *Illegal logging.* While the direct role of illegal selective logging in deforestation tends to be exaggerated, relative to forest clearance for other uses such as ranching and agriculture, it does have significant indirect impacts, by opening up areas for encroachment by ranchers and farmers, reducing the potential of the forest to be managed sustainably for timber as an alternative to conversion to other uses, and undermining the conditions of governance required for environmental planning and control.

58. Illegal logging is largely controlled by external actors who manipulate "ghost" cooperatives set up in the name of groups of local inhabitants in order to comply with the requisites of forestry legislation. It is also probable that the few genuine forestry cooperatives that do exist, and have management plans, use these plans to "launder" timber resulting from illegal harvesting outside of their concession areas. The trade in and transport of timber is also largely dominated by external intermediaries who control the prices received by local inhabitants.

59. The prevalence of illegal logging is due primarily to the existence of high levels of domestic and external demand for mahogany, the trade in which is increasingly lucrative due to high prices arising from the progressive commercial extinction of the resource through over-exploitation; these high prices are seldom perceived by local people, however, due to the control of the timber trade by external intermediaries. Meanwhile, the dominance of the market by illegal timber, produced without payment of management costs and taxes, reduces the competitiveness of timber produced legally according to sustainable management plans, further motivating illegal activity. The relative efficiency and competitiveness of legal forest management is further reduced by regulatory ceilings on the quantities of timber which community-based operators are allowed to extract.

60. The inadequate controls on logging which are at root of this situation are due to the weakness of central and local government (a reflection of explicit and implicit Government policies on geographical and thematic priorities for investment and decentralization); this is a "vicious circle" situation in which the corruption and threats of violence generated by this activity further reduce possibilities of effective regulation. In particular, institutions with key roles in the judicial system, such as the environmental prosecutor's office (*Fiscalía del Ambiente*) lack presence in the area due to logistical and financial limitations, and other actors such as the police and local judges have limited experience in dealing with environmental issues. Local organizations, meanwhile, currently lack the organizational and technical capacity to impose the social controls which might provide an alternative to weak governmental controls, and individual

members or local communities typically are unaware of how to denounce infringements of environmental laws to the authorities. Possibilities for improving governance conditions are further undermined by the incomplete process of land titling, which perpetuates feelings of insecurity and mistrust on the part of diverse local stakeholders.

61. The GTZ-AFE/COHDEFOR PRBR project proposes to address the issue of illegal logging by increasing the areas within the buffer zone under forest management plans. This will provide local inhabitants with exclusive usufruct rights over lands in the buffer zone, strengthening their motivation and capacity to protect the forest against external pressures. Significant improvements in regulation are required to avoid these plans being manipulated for the "laundering" of timber extracted from outside of the management areas themselves, especially the core zone of the RPBR; or sustainable management in the buffer zone simply pushing illegal activities further towards the core zone of the RPBR. In association with the wood use centre CUPROFOR, the PRBR project also plans to fund the establishment of a small wood processing centre in Palacios in order to allow local operators to add value to timber produced in sustainable management units. The local NGO MOPAWI has installed a small portable mill in the community of Copén, however due to lack of funds for technical support, and the lack of an environmental license, this is not yet operational.

62. In association with local organizations such as REMBLAH, the Danish NGO Nepenthes is promoting timber certification as a strategy for bringing about sustainable forest management and reducing illegal logging in north coast humid zone forests. The Italian NGO COSPE has in the past helped forestry cooperatives in the SPPA to obtain certification to Forestry Stewardship Council standards; however, the benefits of this have to date been restricted by limited access to niche markets prepared to pay a premium for certified timber, and limited technical capacity on the part of the producers (although COSPE and the CATIE project TRANSFORMA have both invested in technical training of the cooperatives in Copén and Paya). The new initiative may overcome these problems by concerting efforts between different national entities, achieving the critical mass required for certification to be effective and sustainable.

63. *Ranching and agricultural activities by campesino groups in resettlement areas.* The *campesino* groups, which, during the 1990s, received titles to land taken over from large landowners on the western side of the valley (outside of the RPBR), have cleared significant areas of lowland forest for agricultural and ranching activities. This is less significant in terms of global environmental values than the clearance of forest in the RPBR buffer zone by individual ranchers, as it does not affect the integrity of the RPBR itself, and much of this forest area is in fact secondary regrowth; it does, however, affect cross-valley connectivity and the effective size of the RPBR as a habitat for endangered species of fauna, and has diverted the activities of individual ranchers towards the RPBR.

64. The continued application of these practices by the *campesino* groups is due to the lack of productive alternatives, as already described. However the groups' presence in the valley is a reflection of the lack of coordination between institutions implementing state policies, in this case, with regards on the one hand to productive and agrarian interests and on the other environmental interests; their induced settlement during the 1990s and resulting pressures on the Río Plátano reserve was in direct contradiction to the policies and commitments implied by the area's declaration as a protected area and subsequently

as a UNESCO Biosphere Reserve. An additional factor is the lack of clarity in the legal situation regarding the susceptibility of forested land to agrarian reform.

65. It is unlikely that, during the project period, further induced settlement will be promoted by the Government as it was during the 1990s. The rapid rates of forest clearance in the resettlement area, carried out by *campesino* groups to a large extent to confirm their territorial claims, are unlikely to be repeated; however as significant forest areas do remain in the settlement areas there is likely to be a continued but reduced rate of loss as farmers expand their agricultural and ranching activities.

66. The *campesino* groups receive organizational and technical support from the Pastoral Social of the Catholic Church, whose activities in the SPPA are however still in early stages. Other sources of support include their parent organizations, including the National Campesino Association ANACH; the Irish NGO Trocaire and the SAG/PRONADERS project RERURAL, both of which have promoted intensified cattle ranching.

67. *Land clearance in the delta area to demonstrate ownership.* An additional result of the settlement of *campesino* groups in the valley during the 1990s, has been the clearance of forest by private landowners in low-lying areas outside of the RPBR buffer zone in order to demonstrate ownership and thereby avoid the perceived risk of expropriation. This again reflects the lack of inter-institutional and inter-sector coordination and the legal ambiguities already described. Despite the presence of the SAG/PRONADERS Sico-Paulaya Project, whose responsibilities include the promotion of titling and the completion of the environmental assessment of the *campesino* settlement process, land titling by the National Agrarian Institute INA remains incomplete.

68. *Opening of unauthorized access roads.* In 2001 a road was pushed by local inhabitants from the coastal Garífuna community of Ciriboya to El Castillo, next to Sico village in the Sico-Paulaya valley, without environmental license or technical advice. In addition to the forest which was lost along the direct route of the road, additional areas have been cleared by families which have settled along parts of its length. The road passes through the micro-watersheds on which the coastal Garífuna communities depend for their water supply; they have already noted increased sediment load in their drinking water and have expressed concerns about possible fecal contamination by the settler families.

69. Such uncontrolled infrastructural development is made possible by the lack of conditions of governance in the area, specifically the presence of central government institutions responsible for environmental control (as previously mentioned, this results from tacit policies to focus institutional investment on the productive central corridor). The unilateral decision by Sico residents to construct the road reflects the degree of frustration which they feel regarding their marginalization by the government from the country's development processes. The opening of the road through lands of importance to Garífuna communities, against their wishes, is a symptom of the lack of communication, negotiation and joint planning between stakeholder groups.

70. The negative impacts of the road are being addressed by a locally formed Committee for the Prevention of Settlements along the *Brecha*, which has taken on the role of preventing new colonists from settling along the length of the road.

71. Road access is a double-edged sword; as mentioned previously, limitations on access constrain the development of environmentally-benign alternatives to extensive cattle ranching and the presence of institutions responsible for regulation and technical support. The threats conversely posed by increases in road access, as mentioned here, arise when these are carried out in the absence of the governance conditions required to ensure that the benefits outweigh the risks.

72. *Hunting.* The linear nature of the Sico-Paulaya valley adjoining the RPBR (Map 8, Annex U i) exposes a large proportion of the reserve to hunting. A number of valley residents specialize in hunting, at times undertaking long trips into the reserve. Species especially targeted include Baird's tapir (*Tapirus bairdii*) and the White-lipped peccary (*Dicotyles pecari*). The crested guan or *pava* (*Penelope purpuracens)* and great currasow or *pajuil* (*Crax rubra)*, both prized table birds, have also both been largely extirpated from the fragments of valley in the forest which have to date survived clearance by *campesino* groups.

73. The prevalence of this hunting reflects, again, ineffective state, municipal or community level regulation. It is motivated largely by subsistence demand for bushmeat, and by cultural habits; it is chiefly carried out by a limited number of individuals specialized in this activity, who at times undertake long treks into the RPBR in search of game.

74. ***Texíguat Pilot Area.*** The cause and effect relationships between underlying and root causes and threats to global benefits in the SPPA are summarized in Annex I ii.

75. *Application of inappropriate agricultural practices.* The dry forest ecosystem, which previously covered much of the middle and lower parts of the watershed (Maps 11 and 12 in Annex U ii) , has been almost completely cleared for cyclical subsistence agriculture (Map 8, Annex U ii). The natural resilience of this system is reduced by the repeated use of burning to clear fallow vegetation. In a vicious circle, the use of burning favours the dominance of vigorous, fire-resistant tree and shrub species, whose thorniness make it difficult subsequently to apply clearance methods other than burning.

76. Burning and the subsequent clean weeding of agricultural crops also degrade soil capital; they leave the soil completely exposed to the impacts of raindrops, leading to erosion rates which far outstrip rates of soil building. In addition to local impacts, this soil erosion contributes to sediment loads in the catchment, which affect the ecology of the trans-boundary waters and Ramsar site of the Gulf of Fonseca.

77. The surface crusting resulting from raindrop impact reduces infiltration rates, leading to reduced recharge of soil moisture and aquifers; while the continued absence of surface cover exposes what soil moisture there is to high rates of evaporation. Limited soil moisture reserves in turn make subsistence agricultural crops vulnerable to unforeseeable rainfall variations.

78. In another vicious circle, the resulting repeated crop failures lead to the emigration of economically active members of the population and labour shortages,

which oblige the population that remains to apply extensive practices with low labour requirements, including the continued (and expanded) use of burning for land clearance. These emigration processes also contribute to demographic instability at a national level, and place pressures on natural resources in attraction zones, including globally important humid forest areas.

79. The introduction of intensive management practices is also hindered by tenure arrangements, under which many land poor farmers cultivate on land rented from others; this reduces their motivation to invest limited labour and resources in practices whose long term benefits they will not enjoy, and that of the landowners, due to the risk of investments being damaged by those renting the land from them.

80. The application of inappropriate agricultural practices is perpetuated by projects' and institutions' failure to identify and offer appropriate alternatives which take into account the nature of the dry forest agroecosystem, the degradation processes affecting it, and the factors constraining farmers' actions.

81. Baseline investment in sustainable agriculture comes from a number of sources, including AFE-COHDEFOR (with support from the World Food Programme); the NGO World Vision and Caritas de Honduras. The FAO PESA project is also investing in this theme but will not overlap with the project's implementation period. However, evidence from institutional and project activities to date suggests that the traditional focus on soil fertility management and the physical and vegetative control of cross-surface flow will not resolve problems of sustainability of agricultural production in the long term; research in southern Honduras suggests that water availability may be a more serious limiting factor for productivity than soil fertility or soil depth, and that rain impact, which reduces water infiltration through crusting, may be a more significant problem than soil erosion by cross surface water flow (Hellin and Haigh, 2002). The exception may be the initiatives of CIDICCO, which emphasize farmer-to-farmer information exchange and participatory learning, and technologies such as cover crop management which may more effectively address the true limiting factors to agricultural production. CIDICCO is not currently working in the pilot area itself but supports learning centres nearby which may be accessed by the population of the pilot area. Under the baseline scenario, the entry of PRONADEL into the area without adequate environmental guidance and planning may exacerbate threats, particularly by generating increased demand on the scarce water resources for irrigation. The ever-growing market in Tegucigalpa, meanwhile, will increase the motivation to convert forests in the upper watershed for vegetable growing, and to apply agrochemicals in their production.

82. The Panamerican Agricultural School (Zamorano) is providing support to UMAs in the upper part of the pilot area. In addition, the recently formed Environmental Management Network (REGAMH), coordinated by the SERNA, will be providing guidance and other support related to municipal environmental strengthening nationwide. Despite these investments, and legal provision for the decentralization of controls to local level, it is unlikely that without the project's intervention local regulation of land management practices will improve significantly under the baseline scenario, suggesting that damaging practices such as burning will continue unabated.

83. *Increases in areas under crops.* The resilience of natural capital (soil and vegetation) to agricultural practices is further affected by the shortness of fallow periods, which also increases the area of soil exposed at any given time to rainfall impact and evaporation, and curtails carbon accumulation. This is due to increases in the area's population requiring grains for subsistence, resulting from levels of reproductive growth which continue to outweigh the effects of the emigration of economically active members.

84. Under the baseline scenario, emigration trends are likely to continue, but data from the last census period (1988-2000) show little or no evidence of this reducing population growth rates; indeed, data for the most recent period between agricultural censuses (1965-1993), while less up to date, suggest that farm numbers continue to increase while their average size decreases, representing an intensification of agricultural pressure. Emigration may in fact increase pressure on natural resources, by reducing the availability of the economically active members of the population necessary to intensify land use, while not reducing the number of family units requiring food, thereby motivating the application of damaging extensive land management practices.

85. *Maintenance of inadequate tree densities in fields.* In comparison with other areas of southern and western Honduras (Barrance *et al.*, in press), farmers in this area maintain limited numbers of trees in their fields. This is due to a combination of the use of burning for clearance of fallow vegetation, which kills or inhibits the development of natural regeneration of these species, and the lack of a tradition of combining trees and crops. The retention of timber trees in fields as potential sources of income is constrained by the inappropriate legal environment, which makes no appropriate provision for the piecemeal sale of naturally regenerated trees outside of forests and requires full-scale forest management plans for all harvesting of trees for sale. Farmers are also influenced by a hangover from the previous legal situation (pre 1992), under which trees were state property, which has left lingering uncertainty as to ownership and use rights. Tenure arrangements, namely the fact that many land poor farmers cultivate on land rented from others, also reduce their motivation actively to protect trees, the benefits from which they will not enjoy themselves.

86. In a vicious circle, the apparently long history over much of the Texíguat watershed of not permitting trees to develop in fields, and of applying practices which actively inhibit their development, has led to a reduction in the populations of seed trees of valued species such as *Swietenia humilis* and *Cordia alliodora*, affecting the populations of seedling and stump material available for management.

87. The limited numbers of standing trees in fields reduce the amount of biomass, and therefore carbon, stored in the agroecosystem; affect the conservation status of tree species such as the globally important and rare *L. salvadorensis*, and may affect infiltration and aquifer recharge rates.

88. Despite lobbying efforts (e.g. Barrance *et al.*, 2000) there is no guarantee that the new forestry law currently in discussion will create a more favourable legal environment for the management and protection of trees in agroecosystems. As a result, and due to the continued incidence of burning, it is unlikely that in the absence of the project tree numbers within the agroecosystem will increase.

89. *Cattle ranching.* Cattle-grazing is traditionally an integral part of the agricultural cycle in this area; animals are normally introduced into fields after the harvest to feed on crop residues during the dry season. This practice is a disincentive for farmers to plant trees, as the investment of time and materials required would be jeopardized by browsing.

90. More damaging than the cyclical introduction of cattle into cropping areas is the establishment of permanent cattle pastures on lands previously occupied by dry forest or arid scrub ecosystems and agroecosystems. Permanent pastures are typically characterized by overgrazing and repeated burning, to eliminate parasites and renew pasture growth. This leads to soil compaction by trampling, surface crusting due to rainfall impact on areas left bare, and the progressive elimination of germplasm of native species, reducing the long term capacity of the ecosystem to re-establish itself. Particularly seriously affected is the rare arid scrub ecosystem.

91. Such cattle ranching is attractive to producers because of the favourable economic and policy environment in the livestock sector; and its relative resilience to short term fluctuations in climate, compared to the alternative of basic grain farming whose resilience is affected, as described above, by the application of inappropriate agricultural practices.

92. There are no signs of any mitigation of the general downward trend in precipitation levels reported by Zúniga (1990), or in the unpredictability of rainfall patterns. Under the baseline scenario, it is therefore probable that cattle ranching will become increasingly attractive due to its resilience to rainfall failures, relative to alternative production systems; as will other damaging extensive practices, whose attractiveness will be increased by the labour shortages brought about by emigration of the economically active population, induced by the failure of production systems.

93. *Wildfires in higher level forests.* The pine, pine/oak and broadleaved ecosystems of higher altitudes (Map 8, Annex U ii) are subject to degradation due to repeated burning, which kills off natural regeneration in the understorey (typically of pine forests), leading to a progressive thinning out of the forest as the existing trees age and are not replaced. This has negative effects on the capacity of these forests for hydrological regulation.

94. The wildfires largely result from the burning of pastures by cattle ranchers to renew pasture and eliminate ticks. Underlying factors therefore include the attractiveness of cattle ranching, which in turn is due to the favourable economic and policy environment and the vulnerability of alternative production systems due to the application of inappropriate agricultural practices. The fact that this burning occurs and results in wildfires in forest areas is due largely to ineffective control and regulation, due to the lack of capacity of central government entities, in particular AFE-COHDEFOR. Controls by municipal government and community level organizations are also weak, due to a lack of resources and organizational capacity. There is also an implicit policy to limit the devolution of regulatory responsibilities to local and municipal level, due in part to concerns over capacity and transparency; this reflects a discrepancy between implicit policy and legal provisions for municipal control.

95. Ineffective control by local government and community organizations is exacerbated by the limited perception of the value of forests, due to limited awareness of

hydrological processes and the absence of mechanisms for the payment of environmental services.

96. *Clearance of montane forests for vegetable growing.* In the highest parts of the catchment, montane cloud forests (Map 8, Annex U ii) are under pressure from clearance for vegetable growing. In addition to affecting hydrological regulation, this complete clearance increases the probability of landslides during extreme climatic events. It also has long term impacts on ecosystem resilience, as cloud forest is poorly able to reestablish itself in competition with the pioneer pine trees from the neighbouring ecosystem.

97. Vegetable growing is favoured by ready markets for vegetables in the nearby urban centre of Tegucigalpa. The clearance of cloud forest for this activity is again attributable to ineffective control and regulation, and limited appreciation of forest value, as explained above in the case of pine/oak forests.

98. *Degradation of micro-watersheds.* The elimination of vegetation around water sources used by local communities, due, for example, to the degradation or clearance of montane vegetation as described above, or the expansion of cattle pasture into areas of secondary forest, leads to reductions in the quality and quantity of water. The factors which exacerbate these processes are again ineffective control and regulation, and limited appreciation of forest value, as explained above.

99. The existence of reliable supplies of clean drinking water is fundamental to the survival of rural communities and the failure of water sources is one of the causes of the emigration of economically active members of the population, which, as already explained, leads to labour shortages which in turn promote the application of damaging extensive land management practices.

100. Micro-watershed protection and restoration is a priority in baseline financing. AFE-COHDEFOR, with support from the World Food Programme, is promoting plantations in micro-watersheds and aquifer recharge zones; the long-term sustainability of its actions is, however, called into question by its use of incentives in the form of donated foods. Caritas de Honduras is also supporting micro-watershed protection, the establishment of tree nurseries and the training of local environmental leaders.

101. *Excessive water use for irrigation.* Dry zone river flows are extremely limited, due to a combination of the natural seasonality of rainfall patterns, reductions in long term rainfall averages over recent decades and the deforestation of upper areas of the watershed which increases seasonal variation in water yields. Currently, demand for water for irrigation is not great due to the limited development of irrigated agriculture in areas with access to water, and to the topography which means that the great majority of farmers have no possibility of accessing river water for irrigation.

102. In the absence of watershed level planning and regulation of water management and use, and under conditions in which water is a free resource, the possible promotion by PRONADEL of irrigation schemes (especially if technologies involving inefficient water use are supported) may, however, lead to a significantly increased demand for water, exacerbate its scarcity, and generate conflict between farmers at different points in the watershed.

103. *Inappropriate use of agrochemicals.* Contamination by agrochemicals is one of the 7 principal threats to the trans-boundary waters of the Gulf of Fonseca (PROARCAS, 2001). The sources of these chemicals are various, given the scale and diversity of the conditions of the three main watersheds which drain into the Gulf; they include the vegetable growing areas of the upper parts of watersheds such as Texíguat, and the basic grain production areas of the lower and middle slopes. The frequency of application of environmentally damaging chemicals is due in part to labour shortages (the causes of which are explained above) and the nature of the technical support received by producers, which has focused on the use of chemicals rather than alternatives such as Integrated Pest Management. In addition to the application of chemicals *per se* to agricultural areas, contamination results from the washing of knapsack pumps in water courses, a reflection of limited environmental awareness and a lack of effective regulation.

2 b ii *Project logical framework:*

104. The logical framework is presented in tabular form in Annex A.

2 b iii Detailed description of goals, objectives, outputs, and related assumptions, risks and performance indicators.

105. **Development Objective.** The development objective to which the GEF project will contribute is that "*Multiple global environmental benefits are achieved through mainstreaming of Integrated Ecosystem Management (IEM) principles into productive rural development projects in Honduras and Central America.*". It will, through a relatively modest investment in one such project (PRONADEL), help to ensure that large sums of money destined to rural finance by development projects throughout the region are invested in ways that are at least compatible with, and where possible contribute to, the conservation of global environmental values. This counters the risk that rural development projects will further the goals of the promotion of productivity and economic growth at the expense of global environmental values.

106. **Objective.** The objective of the GEF project in particular is that "*Multiple global environmental benefits have been achieved in the entire area of influence of PRONADEL, by the integration of IEM principles into this development project´s operational procedures, following the successful demonstration, validation and dissemination of experiences of this approach attained in two pilot areas.*" The rural development project to be used by the project for the validation of the model is the IFAD funded PRONADEL.

107. GEF goals will be met by the promotion, though the structure of PRONADEL, of activities which will contribute to the protection of global environmental values, while IFAD objectives will continue to be met by the continued provision of financial support to productive activities among the rural poor. There will also be a considerable amount of "win-win": the conservation of global environmental values in many cases will also lead to the protection of natural capital of importance to local actors, and certain "environmental" activities may be economically viable in their own right (although sometimes requiring "kick start" investment) and simultaneously confer significant local and global benefits. Crucial to the contribution by this Overall Objective to the

Development Objective will be the implementation of effective means of dissemination of lessons learnt on the "proving ground" of this project.

108. A key assumption for the achievement of this objective is the link between the project and PRONADEL; while the project could bring about conservation and integrated environmental management and planning in its pilot areas in the absence of PRONADEL, the removal of this link (due to possible changes in the policies of the national government or IFAD) would make it unable to demonstrate how these goals can be achieved in a catalytic manner through a rural development project. This would not, however, entirely invalidate the demonstration potential of the project; it would require a change of the project's message, with increased emphasis on the concept of integrated ecosystem management, rather than the institutional arrangements for implementation (although it would still be able to demonstrate how to work through a series of smaller counterparts).

109. **Component 1: Considerations to achieve multiple global environmental benefits using IEM principles have been successfully mainstreamed into PRONADEL´s national procedures and operations and are effectively producing the expected results.** Central to the concept of the project is its effect in modifying the national operations of the counterpart project PRONADEL (whose current status, in terms of its general characteristics, operational procedures and approach to environmental issues, is described in Annex M). Relatively modest investment by the GEF project will serve to reduce the possible negative impact of PRONADEL's operations on global environmental values and exploit opportunities for "win-win" situations, through promoting the adoption of mechanisms for the environmental assessment and monitoring of the activities supported by PRONADEL, and disseminating throughout PRONADEL lessons generated in the two pilot areas on the integration of rural development and environmental conservation.

110. The principal risk to the achievement of this objective is pressure at political level to emphasize short term results in terms of productivity and financial execution, at the expense of environmental and natural resource management considerations, and sustainability. This risk will be countered by the placement within PRONADEL of a GEF Project Coordinator and Environmental Specialist, who will provide advice on environmental issues to PRONADEL at all levels, including the Board of Directors; and the establishment of close links between the GEF Project Steering Committee (on which will be represented members of the environment ministry SERNA and the Environment Cluster of the UNDP Country Office) and the Board of PRONADEL.

111. ***Output 1.1: Environmental considerations, including mechanisms for environmental evaluation, monitoring and mitigation, mainstreamed into PRONADEL financed rural development operations, and fine tuned over time with lessons learnt from pilot studies.*** Central to the project is its influence on PRONADEL's support to community-based productive initiatives, in order to ensure their compatibility with the conservation of global environmental values. As a result of the project, PRONADEL will have modified its activities nationwide, taking into account geographic and temporal variations in context, to reflect the lessons learnt in the two pilot areas. This will result in the avoidance of negative impacts on global environmental values across the whole of

PRONADEL's area of influence, which, given the scale of PRONADEL, would be a significant risk in the absence of the GEF project.

112. The effectiveness of the project's strategy of "levering" co-financing by PRONADEL will depend on the PRONADEL's geographic priorities and methodologies over the life of the project. The project will influence these through the high-level contacts which have been established with PRONADEL, DINADERS and SAG during the PDF-B phase, and which will be formalised during the implementation phase (as described under Component 1). The implications at pilot area level of any change in the geographical priorities of PRONADEL will be mitigated by the existence of links between the project and a range of other partner institutions and projects active in areas related to the objectives of the GEF project.

113. *Project evaluation processes.* The project will have significant environmental benefit by assisting PRONADEL to select for support only those projects which are either environmentally "benign" (either by nature, or as a result of mitigation measures which the project will help PRONADEL to identify), or actively contribute to the protection of environmental values. This will be achieved through methodological support to the project approval process applied by Local Project Approval Committees (CLAPs) and, in certain cases the central Project Approval Committee CAP, as stipulated in the Regulations of the Rural Development Fund (see Annex M for background on PRONADEL and its procedures). Initial agreement on improved mechanisms for environmental appraisal of projects presented for PRONADEL support has been reached during the project preparation phase (see Annex M i); this is in accordance with the memorandum of understanding entered into by SERNA and SAG by which SERNA agrees to the SAG (through PRONADEL) developing and applying simplified environmental evaluation mechanisms for productive projects which it supports, without the need for the SERNA to issue formal Environmental Licenses for each project. During the implementation phase, these mechanisms will be validated and expanded upon in the two pilot areas, as an outcome of the participatory processes of context analysis and natural resource planning.

114. *Planning, monitoring, evaluation and systematization (PMES).* The project will ensure the incorporation into the PMES system of PRONADEL of indicators related to environmental concerns and the theme of integrated ecosystem management, thereby ensuring that the success of PRONADEL is in part judged by its success in taking into account these considerations. These indicators (including community members' perceptions of the environmental impacts of productive initiatives supported by PRONADEL, the numbers of families and organizations participating in environmentally-benign activities, the capacities of local organizations to provide technical support for environmentally-benign activities and the numbers of municipalities with the capacity to plan natural resource management) have been initially agreed during the project preparation phase, and will be included in the baseline study of PRONADEL, which will be carried out in the first half of 2003. Strategies for achieving the close integration that is foreseen between the PMES systems of PRONADEL and of the GEF project are presented in Annex N.

115. *Territorial context analysis and natural resource planning.* The project will demonstrate, in the pilot areas, the value of broadening the process of territorial context

analysis beyond that already contemplated by PRONADEL, to emphasize considerations of environmental values at local, national and global levels, local people's valuation of natural resources, and their interactions with them; and of ensuring that support to territorial planning processes goes beyond solely productive issues to take into account both the tangible and intangible aspects of environmental and natural resource management. The approach to be applied by the project in relation to participatory context analysis and planning in the pilot areas is set out under Objective 2.1.

116. *Activity 1.1.1: Provision of advice and training to PRONADEL on IEM and environmental concepts.* PRONADEL staff members are mostly specialized in areas related to production, such as agronomy, small enterprises, finance and production, with limited background in environmental issues. The GEF project will provide training to around 24 PRONADEL staff at Direction, Sub-Direction and technical levels in concepts of integrated ecosystem management, including:

- hydrological and watershed concepts
- environmental services
- environmental aspects of rural livelihoods
- environmental impact assessment (with emphasis on locally applicable procedures).

117. This training will be provided by means of a combination of one-day seminars, workshops and attendance at courses run by national and regional educational centres. This activity will allow PRONADEL staff to take on board and replicate the lessons generated in the pilot areas and will affect PRONADEL's way of working across the whole of its area of influence. In order to counter the risks of staff turnover within PRONADEL, this training will be spread throughout the duration of the project (which corresponds to the whole remaining implementation period of PRONADEL) and include periodic refresher sessions.

118. In addition, ongoing advice and support will be provided to PRONADEL staff at both direction and technical levels, across the whole of PRONADEL's area of influence, on the application of environmental considerations (specifically integrated ecosystem management) in the project's procedures and in practice. GEF project staff will ensure that environmental indicators are understood and measured, and that procedures (negotiated during the PDF-B phase and detailed in Annex M i) for environmental evaluation of projects funded by IFAD are correctly applied, and will monitor the processes of watershed and natural resource management planning to ensure that environmental considerations are adequately taken into account, in a way that respects the agreed balance in the project between local and global interests.

119. The project will also train and advise PRONADEL staff at national level on "environmental projects" potentially supportable by IFAD funds destined for that purpose, and on the geographical focusing of those funds towards areas of high environmental priority. The effective use of these funds in support of local and global environmental values is currently restricted by the limited capacity of that programme's staff to identify suitable activities to support. Criteria for the use of these funds have been agreed with PRONADEL staff during the PDF-B phase.

120. *Activity 1.1.2: Support, monitoring and adjustment of the environmental evaluation and monitoring mechanisms designed during the PDF phase.* The mechanisms for environmental monitoring and evaluation designed during the PDF-B phase may encounter teething problems in their application in practice by PRONADEL staff and local communities, or may encounter resistance or low prioritization. The adviser based in PRONADEL will periodically visit regional staff and communities applying environmental evaluation and monitoring procedures, to ensure that they are understood and being applied correctly, and will review projects which have been subjected to the procedures to assess their results in terms of the avoidance and mitigation of environmental impacts.

121. *Activity 1.1.3: Monitoring, evaluation and systematization of results at site level.* The application and results of the strategies proposed for the two pilot areas will be monitored and evaluated, with the participation of both PRONADEL and local stakeholders, and the results of these processes systematized into "lessons learnt", which will relate the experiences noted (whether positive or negative) to the methodology applied and identify which aspects of that methodology are worthy of replication elsewhere and which should be modified or discarded.

122. Systematization of results at pilot area level will be carried out, in conjunction with PRONADEL staff members resident in the pilot areas, through interviews and participatory workshops in which representatives from the different interest groups will share and discuss their experiences with watershed and natural resource management planning, and productive activities. Once systematized, the results of these interviews and workshops will be included in documents to be used as replication tools, thereby contributing to the effectiveness of the different conservation and production strategies promoted, and promoting replication of project impacts outside of the pilot area itself.

123. The system for planning, monitoring, evaluation and systematization (PMES) to be applied by the project will be closely integrated with that of PRONADEL. It will permit the handling of both qualitative and quantitative information, and involve active participation of local stakeholders, with a strong emphasis on communication of the information needed by stakeholders at different levels for decision making. The indicators to be included in the system, and their sources of verification, are presented in the logical framework (Annex A); the PMES system is explained in detail in Annex N. At the start of the project's implementation period, the logframe and other aspects of the PMES system will be newly validated among the staff of the GEF project and of PRONADEL.

124. *Activity 1.1.4: Dissemination throughout PRONADEL of lessons learnt in the pilot areas.* The lessons learnt in the pilot areas, in terms of the broader applicability of the activities piloted there, will be disseminated to members of PRONADEL staff at all levels, with the result that they will be capable of making decisions regarding their application within their own areas of influence. The project's strategy for the dissemination of lessons learnt is presented in Annex P. The principal means for dissemination will be through seminars, in which both field and direction level staff will participate; and exchanges of field visits in which field and direction level staff will visit the pilot areas, followed by return visits by GEF project staff to advise on the application of lessons learnt elsewhere in the program's area of influence.

125. **Component 2. The approach to integrate IEM principles in PRONADEL's operations has been successfully demonstrated and validated to yield multiple global environmental benefits in two pilot areas**. Through the modification of PRONADEL operations, and the implementation of complementary activities, the project will address all of the threats affecting the global environmental values (listed in section 2 b i) in the two pilot areas, and will thereby lead to the global environmental benefits set out in section 2 b iv.

126. The activities proposed to produce the outputs under this component will complement significant levels of baseline activity on the part of other institutions, detailed in Annex R. In addition to the counterpart project PRONADEL, whose activities in support or productive initiatives in both pilot areas will be guided by this project, the most important of these are the following:

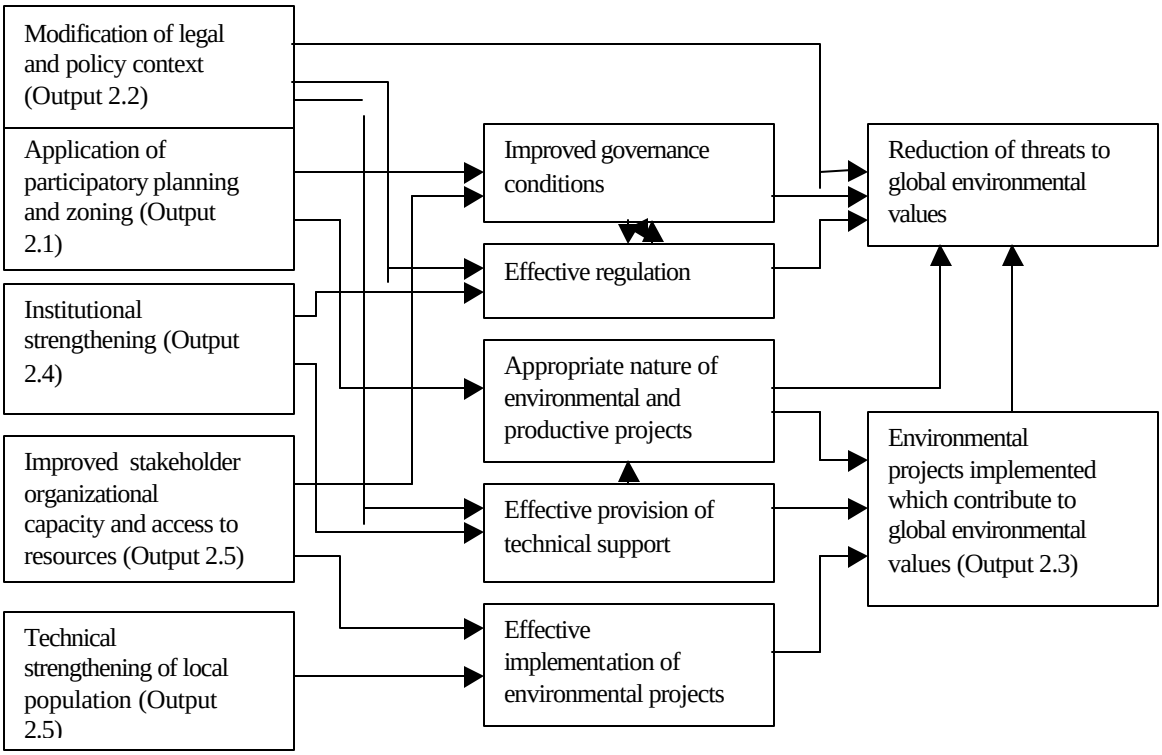
- The GTZ-supported Río Plátano Biosphere Reserve Project, implemented through AFE-COHDEFOR, which is supporting regulation, the planning and zoning of activities, sustainable forest management and the intensification and stabilization of ranching within the Río Plátano Biosphere Reserve. This project will build on these activities and extend them to include the whole Sico-Paulaya valley, as a logical management unit.
- The SAG Sico-Paulaya Project, which is constructing an inter-institutional centre in Sico which this project will help to equip, and which has sponsored an Environmental Impact Assessment of the *campesino* settlements, the recommendations of which correspond with the proposed activities of this project.
- The *Fiscalía de Ambiente*, which has committed to providing field personnel in both pilot areas to promote regulation, and to which this project will provide logistical and training support.
- The NGO CIDICCO, which is supporting participatory research and farmer-to-farmer interchanges on sustainable agriculture, which, with support from this project, will be extended to producers in the Texíguat pilot area.
- World Vision and the World Food Programme, which are promoting sustainable agriculture and reforestation in the Texíguat catchment and may benefit from the technical lessons learned by this project.
- The FAO programme PESA and the Dutch Cooperation, which are promoting participatory planning at a micro-watershed level, which this project's support of watershed level planning will complement.

127. ***Outputs:*** Implicit in this Component, and necessary in order avoid the risk of the project stimulating increased pressure on the pilot areas or simply diverting the pressures there elsewhere, is the integrated production 5 outputs. The project will be innovative in demonstrating the importance of such an integrated approach. The threats to global environmental values addressed by each of the Activities which will be undertaken in pursuit of these outputs, detailed below, are set out in Annex J i.

128. As shown in Fig. 1, the outputs of the project in the pilot areas are highly interrelated and mutually interdependent. The sustainable reduction of threats to global

environmental values depends upon future activities carried out in the pilot areas being carried out in accordance with plans which specify, on the basis of the priorities of local stakeholders and biological considerations, which activities are permissible in which areas, and under what conditions (Output 2.1). For these plans to be applied effectively requires "teeth" in the form of locally-acceptable and effective regulation. This will be brought about by influencing policy decisions at national level regarding investment in institutional/regulatory presence in the areas (Output 2.2); by promoting improved conditions of governance in general, through supporting participatory planning processes (Output 2.1) and promoting the technical and organizational capacities of local stakeholders (Output 2.5); and by strengthening institutions involved in regulation, through logistical support, training and the promotion of their participation in multi-stakeholder dialogues (Output 2.4). For the reduction in threats to be sustainable, it is also necessary for local stakeholders to have access to alternative activities which are compatible with, or further, the conservation of global environmental values (as defined by the planning instruments which will result as Output 2.1). Through the project's activities in technical strengthening of local stakeholders (Output 2.5), they will acquire the capacity to undertake such activities, with support from institutions which will also receive technical strengthening from the project with relation to such activities (Output 2.4). Some such activities, especially those that are new or innovative, require one-off "barrier removing" investment in order to make them viable and attractive to local stakeholders (Output 2.3).

Fig. 1. Relationships between pilot area outputs



129. ***Output 2.1:*** ***Application of cross-sectoral and participatory planning for IEM in the two pilot areas.*** The application of adequate planning frameworks in the two pilot areas will ensure that the diverse threats identified previously to locally important resources (water, forest and soil) and globally important environmental values (biodiversity, carbon storage and land and ecosystem resilience) are addressed effectively, efficiently, sustainably and equitably, taking into account the social and biophysical characteristics of each area, including the aspirations and needs of the local population for development. This output is fully in line with the national policy expressed in the National Biodiversity Strategy of "achieving a better use of national territory based on territorial and environmental land use planning which orients and regulates the sustainable management of natural resources and high risk zones".

130. The project will result in the formulation and implementation, within the two pilot areas, of plans at a number of levels, including the following (presented in more detail in Annex O):

- **Water resource management**, in the Texíguat watershed. The objective of this planning will be to *maximize the sustainability, efficiency and equity of the management and use of limited water resources at a watershed level, in order to ensure its continued availability for productive use and consumption by all of the area's population.* This will provide the planning context for the promotion of the wise use of limited water capital, to counter the risk stated in the previous section that PRONADEL and other rural development projects will promote forms of productive activity (especially irrigation) which will degrade or exhaust water resources.

- **Ecotourism planning**, in both Texíguat and Sico-Paulaya pilot areas (in the former case, covering the entirety of selected municipalities in the upper part of the catchment near to Tegucigalpa and in the latter, the Sico-Paulaya valley and the coastal Garífuna communities). The objective of this planning will be to *promote the realization of the potential of the areas' biological, landscape, archaeological and cultural resources to generate income through ecotourism in a sustainable and equitable manner, which will at the same time motivate local stakeholders to protect those resources.* This will promote the relative attractiveness of ecotourism as an environmentally positive alternative to damaging forms of forest and land use, such as swidden farming and extensive ranching, thereby reducing the threats posed by these activities to local and global environmental values as described in the previous section. A spatial approach to the planning of ecotourism is necessary given the need to guarantee the overall scenic attractiveness of the area, and to provide for the return of the benefits of the ecotourism activities which may result to those who incur the costs of the conservation of scenic values; planning beyond the local level is necessary to ensure that tourists are guaranteed a chain of attractions to lead them to the areas, in accordance with the concept of "tourism corridors" promoted by the Honduran Institute of Tourism IHT (the planning and development of tourism will be carried out within the context of the national and regional development plans of the IHT). A temporal approach to planning is necessary to ensure that infrastructural and security needs are developed at a pace that is appropriate to the demand and the resources available.
- **Forest resource management** in the Sico-Paulaya pilot area. The objective of this planning will be to *promote the sustainable and equitable management of the area's forest resources as a means of generating income and at the same time increasing local inhabitants' motivation to protect them against degradation or conversion to other land uses.* As with ecotourism, described above, this will promote sustainable forest management as a "win-win" alternative, reducing the relative attractiveness of damaging forms of forest and land use which threaten local and global environmental values. The emphasis of this planning will be to ensure that forest use does not exceed the resource's biological carrying capacity or local regulatory capacity, or lead indirectly to increased pressures on areas outside of the management units. It is necessary for such planning to be carried out at the level of the pilot area as a whole, in order for those involved in sustainable forest management to achieve the "critical mass" required to gain and maintain access to niche markets for sustainably-produced timber (where possible through timber certification schemes), and to permit the development of local processing and marketing capacity.
- **Tree and forest resource management** in the Texíguat Pilot Area. As in the case of Sico-Paulaya, the objective of this planning will be to *promote the sustainable and equitable management of the area's forest resources as a means of generating income and at the same time increasing local inhabitants' motivation to protect them against degradation or conversion to other land uses.* The emphasis of this planning will also be to ensure that the promotion of tree use

does not exceed the institutional and local capacity for its regulation, and is accompanied by adequate measures to ensure the regeneration of the resource. As in Sico-Paulaya, this will contribute to the protection of tree diversity and to the provision of services by trees and forests (including carbon capture and the recharge of aquifers and soil moisture). Planning at pilot area level will permit the development of appropriate local level regulations on tree use and management, and opportunities for processing and market access.

- **Sustainable and organic agriculture** in the Texíguat catchment. The objective of this planning will be to *facilitate the application of agricultural practices appropriate to the biophysical and socioeconomic conditions of the area, in order to promote the sustainability of local livelihoods, demographic stability and the resilience of the area's ecosystems and agroecosystems, and reduce impacts on global and local environmental values.* In particular, the promotion of sustainable and organic agriculture will reduce land degradation, promote soil water resources, increase stored carbon and protect agroecosystem biodiversity. This planning will focus on the coordination of the provision of technical assistance between projects and institutions in order to avoid contradictions and maximize the opportunities for participatory learning, and the development of locally appropriate regulations on activities which degrade global environmental values such as the inappropriate use of agrochemicals and burning.

131. The contribution of this Output to Objective 2, the protection of global environmental values in the pilot areas (particularly Sico-Paulaya) will depend on the existence of an effective regulatory environment to ensure compliance with the plans, zoning and norms developed. The complementary support by the GTZ/AFE-COHDEFOR Río Plátano Biosphere Reserve Project to the AFE-COHDEFOR Regional Office will be crucial in this regard. The GEF project will contribute to the strengthening of regulation by:

- Providing logistical and training support to institutional players (the Public Ministry, AFE-COHDEFOR, the police, judges and municipal authorities) in the enforcement of environmental laws (see Output 2.4);
- promoting multi-stakeholder dialogue on regulation and governance in order to ensure that appropriate and sustainable actions are taken (see Output 2.4);
- stimulating local awareness among local stakeholders of issues related to natural resource degradation, thereby promoting social auditing (see Output 2.5);
- empowering currently isolated farmers in the buffer zone through organizational support (see Output 2.5);
- influence (both directly and indirectly) decision-makers at policy level to bring about increased State regulatory presence in the area (see Output 2.2).

132. *Activity 2.1.1: Facilitation and articulation of watershed and natural resource management planning processes.* The effective and efficient application of environmental criteria to productive and other activities in both pilot areas, and the appropriate orientation of institutional investments to ensure local and global benefits, depend upon the existence of well-informed, participatory, inclusive and sustainable processes of natural resource management planning in both Pilot Areas. The contribution of these

planning processes to countering the threats to global environmental values in the pilot areas is explained above.

133. In coordination with the local institutional actors (e.g. Sico and Paulaya project and the Pastoral Social in Sico and Paulaya, and PESA in the Texíguat Pilot Area) the project will provide facilitation, advice, technical and information support to participatory processes of natural resource and land use planning. The various elements of these processes will be inserted into processes already underway in the pilot areas.

134. These processes, described in detail in Annex O (Plan for Watershed and Natural Resource Planning Processes) will commence with context analyses, which will create the conditions for the subsequent definition of environmental criteria and zoning of productive activities, the planning of community and institutional activities which contribute to integrated ecosystem management goals, and conflict resolution to avoid negative social consequences of conservation initiatives. Context analyses will include reflection on social, economic and biophysical relationships and dependences between different parts of the pilot areas and lessons (both technical and organizational) to be learnt from institutional activities in the areas to date.

135. The context analyses will build upon and expand the community and municipal level diagnostics, which are already part of PRONADEL's methodological procedure in its target municipalities. These processes will also be linked to municipal planning under way in both areas, specifically the elaboration of municipal development plans; and to processes of inter-municipal planning which have commenced among several groups of municipalities (*mancomunidades*). These links to existing processes will facilitate the adoption by local communities of the planning processes facilitated by the project, and the enforcement of the proposed environmental norms by municipalities, using the powers granted to them under the Municipalities Law (Decree 134/90). In the Paulaya valley section of the Sico and Paulaya Pilot Area, the processes will be coordinated and implemented through the Committee for the Development of Sico and Paulaya, an entity which represents and is respected by all of the different stakeholder sectors in this area.

136. ***Output 2.2: Inclusion of considerations of IEM in the policy formulation and lobbying processes of key national institutions, with mandates in resource management and rural development, has led to modifications in legislation, policies, regulations and economic incentives which promote global environmental benefits in the pilot areas.*** The effective promotion and protection of global environmental values requires "teeth" in the form of appropriate and enforceable laws, policies, regulations and incentives. As a result of the project, national policies will be modified to direct adequate institutional and financial resources to the pilot areas and to correct and avoid "perverse" effects of existing instruments. Local incongruities in laws, policies, regulations and incentives will be identified by local actors and modifications developed to improve their local relevance and effectiveness.

137. In the Honduran context, it is necessary, in order for influence on policy to be effective, for it to be carried out by entities (whether governmental or non-governmental) which have permanent in-country presence, form part of the constituency of the national government and can claim a grassroots constituency of their own. Rather than positioning

itself as lobbyer in its own right, the project will therefore achieve reform indirectly, by the adoption of two strategies:

- Orienting, informing and strengthening key national groups and institutions, so that they press for such reforms and continue to do so in the long term. This will involve a significant degree of participation by project staff in meetings, forums and other opportunities for the discussion and promotion of the reforms which are needed;
- Enlisting the support of the UNDP Country Office in facilitating high-level discussion processes on policies and laws related to natural resources. The Country Office has amply demonstrated its capacity and credibility in this role in relation to themes including transparency and governance.

138. The principal recipients on whom the project aims to have an influence, through support to local and national groups and institutions active in debates on policy formulation, are the following:

- The National Congress, responsible for the formulation of legal instruments.
- Sector ministries, especially SAG and SERNA, and their UPEGs responsible for policy direction.
- Semi-autonomous entities including DINADERS, AFE-COHDEFOR and INA, which are responsible for the interpretation and implementation of legal and policy instruments; their interpretations in effect represent a stage of policy formulation.
- Municipal and Departmental authorities, responsible for the formulation of local regulations.

139. Reforms sought through the support of policy discussion processes will include the following:

- Regionalization and democratization of processes of policy formulation (which currently have a sector-based, rather than regional focus and therefore fail to promote integrated approaches which recognize the local geographical idiosyncrasies behind processes of resource degradation), access to information and decision making;
- Improved coherence between sectors and institutions in the interpretation and application of laws and policies, in order especially to limit contradictions between the objectives of rural development and the conservation of natural resources and global environmental values;
- Increased state investment in governance, social development and technical and financial support in the pilot areas and other environmentally sensitive areas, in order to discourage environmentally damaging activities and facilitate those which contribute to the conservation of global environmental values;
- Improved equity in the access to land and other natural resources, and the benefits thereof, and increased clarity regarding the conditions under which land is susceptible to titling, as a prerequisite for the sustainable management of natural resources;
- Identification and definition of functional and equitable schemes of compensation and incentives, including the modification of policies and incentives which

currently favour activities which are harmful to global environmental values, such as extensive cattle ranching.

- Simplification and increased relevance of regulations and official procedures, including the review of the ceilings on the production levels of community based forestry operators and the reduction of the legal and bureaucratic obstacles to the productive management of naturally regenerated trees in agroecosystems, in order to encourage such activities which are compatible with the conservation of global environmental values;
- Extension of the timeframe of natural resource management planning in order to promote sustainability and reflect the pace of natural processes.

140. *Activity 2.2.1: Capacity strengthening and information support for policy influence by key national institutions*. Players of key importance for lobbying will include the Department of Planning and Policy in DINADERS, the UPEG of the SAG, and the UPEG of the SERNA. The project will provide support to these and other national institutions, as required, in the form of information and advice in order to ensure that themes of relevance to the environmental threats in the pilot areas are promoted. The project will also provide financial and logistical support for meetings, seminars, policy briefing papers and field visits required to promote its areas of interest, in which there will be active participation of local stakeholders from the pilot areas, including municipal authorities and other community representatives. Where possible, the project will also take advantage of high level contacts established during the PDF-B phase to discuss modifications of the policy and legal context with decision-makers and policy formulators at Ministerial and Congressional level; in all cases this will be in strict coordination with DINADERS, SAG and SERNA. The support of the UNDP Country Office will be enlisted as required, given the contacts and credibility already enjoyed by that institution.

141. *Activity 2.2.2: Promotion of a regional level approach to policy formulation and application*. In large measure, the negative impacts of laws and policies in the Pilot Areas are due to the lack of specificity of their provisions to particular local conditions. The project will facilitate the review and application of sector policies related to management and conservation of natural resources and rural development at regional level, through workshops at local and national level, linked to the context analysis described in Output 2.1. These workshops will also serve to promote inter-institutional coordination, thereby addressing the problem of inconsistencies between sector policies and their interpretation in practice by different state bodies, which are largely responsible for situations such as the settlement of *campesino* groups on land adjacent to the RPBR. The project will also promote and facilitate the adoption by local entities of a role of monitoring trends in state and municipal interventions; in the case of the Sico and Paulaya Pilot Area, this will be the role of CODESPA and in Texíguat an alliance of municipalities.

142. The project will adopt a flexible approach to this activity, being guided by the results of workshops and consultations carried out as part of the participatory context analysis (see Output 2.1) and this activity itself. The project staff will use as guidance the analysis and recommendations contained in the report of the policy study carried out during the PDF-B phase (Suazo, 2002).

143. ***Output 2.3: Demonstration projects in alternative productive and land-use practices established in the pilot areas providing critical information for the application of IEM.*** The budget available through IFAD funds in PRONADEL for the implementation of "environmentally friendly" projects in the two pilot areas is insufficient to achieve significant impact in pursuance of the objectives of the GEF project. The GEF project will therefore provide funds for the establishment of additional initiatives, with the potential to contribute directly or indirectly to the conservation of global environmental values, through a "Green Fund", alongside (but accountably distinct from) baseline IFAD monies within PRONADEL's Rural Development Fund (RDF). Projects to be supported by these funds will be identified jointly by local people and staff of the GEF project and PRONADEL; GEF project staff will ensure that the projects identified have the potential to contribute to global environmental values. Approval of the projects, once identified, will be responsibility of the Project Approval Committees (CLAPs) which are also responsible for approving projects for IFAD funding through PRONADEL. The rules for the management and disbursement of this fund will be set out in detail in an annex to the RDF Manual.

144. *Activity 2.3.1: Establishment of multi-use environmental centre in the Sico-Paulaya Pilot Area.* A centre will be constructed in Sico, which will include maps and displays of biological, social and archaeological points of interest in the area and routes and other attractions for ecotourism. It will have the following uses:

- Environmental education activities with the local population.
- Dialogue and joint planning meetings by local stakeholder groups and local and external institutions.
- Use by visiting researchers (for example space for the initial handling of specimens).
- Interpretation facilities for tourist visitors.

145. The establishment of this centre will be supervised by a PRONADEL staff member resident in Sico, with technical support provided by consultants. Long term management and maintenance of the centre will be the responsibility of the inter-sector committee in Sico, using funds raised by the levying of charges on non-local users of the centre.

146. The establishment of this facility will promote the conservation of global environmental values in the following ways:

- Promoting awareness among local stakeholders of the threats to global environmental values and alternatives by which they can be addressed (contributing to Output 2.5);
- Facilitating the processes of dialogue on options for regulation and the promotion of governance (in support of Output 2.4);
- Facilitating the identification, through research, of technical solutions to threats facing global environmental values (in support of Output 2.5);
- Facilitating increases, through research, of the knowledge base available to institutional stakeholders related to the pilot areas, thereby increasing their ability to counter threats to global environmental values (in support of Output 2.4);

- Facilitating the development of ecotourism, as a contribution to the conservation of global environmental values, in accordance with the planning processes proposed under Output 2.1.

147. *Activity 2.3.2: Establishment of a micro-hydroelectric system in Sico-Paulaya pilot area.* Currently, the electricity supply in Sico village is provided by more than 20 individual gasoline- and diesel-driven generators; while the neighbouring Guarascá micro-watershed is subject to serious levels of deforestation. A micro-hydroelectric system (with associated distribution system) will be installed in the Guarascá micro-watershed, to supply electricity to Sico village.

148. This activity will promote the valuation by local people of the forests of the Guarascá valley, within the RPBR buffer zone, from which the water comes which will be used to power the system. It will therefore motivate them to address the threats to these forests posed by slash and burn agriculture and extensive cattle ranching. It will also act as a highly replicable demonstration of how a small rural community can base its economic development on "clean" energy rather than the consumption of fossil fuels, thereby reducing impacts on global fossil carbon stocks.

149. Technical and organizational support, in the form of short training courses, reference manuals and periodic advisory visits, will be provided to ensure that local community organizations have the capacity required for managing systems of metering, charging and administration.

150. *Activity 2.3.3: Establishment and support of demonstration farms in both pilot areas.* In order to assist the promotion of mulch based agricultural systems in the Texíguat pilot area and perennial based systems in the Sico-Paulaya pilot area, demonstration farms will be supported in association with local farmers. In Texíguat pilot area, this activity will lead to increased application of practices which prevent land degradation, promote water infiltration and increase the carbon content of production systems; in Sico-Paulaya, the practices promoted will provide alternatives to the slash and burn agriculture and extensive cattle ranching which currently threaten the area's remaining forest resources.

151. In Texíguat, these farms will be established by farmers who previously will have received training, with funding from the project, on the existing demonstration farms supported by the NGO CIDICCO. In Sico-Paulaya, the project will support the existing demonstration farm in the grounds of the Velásquez Institute in Sico. While most of the activities demonstrated will be productive in nature and therefore can be realized by the farmers either without support or with credit support from PRONADEL, trial activities which imply a risk for the farmers will be considered incremental and funded by GEF. The success of these farms as mechanisms for demonstration will be highly dependent on the nature of the extension mechanisms applied; the trial and demonstration activities carried out will be highly participatory, the technologies being identified through a participatory process and evaluated by local people. The project's support to these farms will cover both the costs of establishing teaching and accommodation facilities, and the attendance of farmers from the pilot areas at courses held there.

152. *Activity 2.3.4: Establishment of an information resource on natural resources and biodiversity in the inter-institutional offices in Sico and in municipal offices in the*

Texíguat catchment. The lack of accurate, objective, in-depth and up to date information hampers the development, by institutions active in the two areas, of strategies and activities which correctly address the socioeconomic and biological realities of the threats facing the global environmental values of the Pilot Areas. An information resource, with literature, maps, GIS equipment and GIS data, will be provided for the inter-institutional offices which are being established in Sico, and for one of the municipal offices in the Texíguat catchment. Institutional actors with access to this resource will include the National Agrarian Institute, AFE-COHDEFOR, PRONADEL, the Municipality and the Public Ministry. PRONADEL staff based in the pilot areas, trained by the project, will be responsible for managing this information resource and ensuring that it is of use to institutional and local stakeholders for planning and monitoring. Local staff of AFE-COHDEFOR and the municipality will also be involved by the PRONADEL staff in the running of the office with a view to handover of responsibility for its long term management at the end of the project.

153. This will address the problem of a lack of inter-institutional coordination and planning, thereby increasing the efficiency of use of the resources available and avoiding the risk of the promotion of inappropriate activities with negative effects on global environmental values. It will also contribute to sustainability by acting as a tool for the monitoring of environmental indicators by local stakeholders including students, thereby acting at the same time as an educational tool.

154. *Activity 2.3.5: Support of other environmental investment projects identified during the life of the project*. In reflection of the "demand-driven" approach of the counterpart project PRONADEL, the GEF project will support other projects, in addition to those described above (Activities 2.3.1-2.3.4) which may be identified by local stakeholders and other actors during the course of the project as a result of the participatory analyses described under Output 2.1, and which contribute to the conservation of global environmental values. GEF project staff will participate in the identification and evaluation of projects to be supported through this fund to ensure that, as well as reflecting local demand, they contribute to the conservation of global environmental values.

155. ***Output 2.4: Key institutions in pilot areas have increased awareness in, and capacity for applying and enforcing IEM.*** As described in Annex L, limited conditions of governance in the two pilot areas are a significant obstacle to the application of the effective regulation and planning, which as already described is required to protect and promote the rational management of global environmental values. The project will provide counterparts (institutions, projects and service providers) with the knowledge, awareness and information they need to incorporate and apply participatory, democratic and inclusive IEM, apply effective regulation and support productive activities which promote global benefits. The information resources to be established as described above (Activity 2.3.4) will make an important contribution to the strengthening of institutional capacities.

156. Project staff will use as guidance, in the implementation of the institutional strengthening activities set out below, the analysis and recommendations contained in the report of the study of institutional capacities carried out during the PDF-B phase (Figueroa, 2002).

157. *Activity 2.4.1: Awareness raising, training and information support to institutional counterparts regarding the biophysical and social dynamics of the pilot areas.* In addition to information on the current status of socioeconomic and biological conditions, the development of appropriate and sustainable interventions depends on the institutions responsible understanding how social, economic and biophysical processes function in the two Pilot Areas. Training sessions, workshops and informative literature will be provided to institutions, organizations and NGOs active in the area (including AFE-COHDEFOR, Pastoral Social, DINADERS, MOPAWI, CISP, Bayán and INA), covering aspects of the pilot areas such as biodiversity (both in natural ecosystems and agricultural systems), ecology, hydrology, smallholder livelihood strategies and local and regional markets. This activity will increase the capacity of institutional counterparts and service providers to devise and monitor interventions compatible with GEF goals and carry out effective and efficient regulation. Inputs to these activities will be provided by specialist consultants and invited researchers, through the research collaboration set out under Activity 2.4.4.

158. *Activity 2.4.2: Provision of training and logistical support to key institutions in the judicial system.* The project will provide training and logistical support to local AFE-COHDEFOR staff (complementing that provided by the GTZ-supported RPBR project), the police, the environmental public prosecutor (*Fiscalía del Ambiente*) and local judges, each of which plays a key role in the system of enforcement of regulations affecting activities in the Río Plátano Biosphere Reserve and surrounding areas. Logistical support will include the construction of a building which will serve as a base for representatives of institutions in the judicial system (police, *Fiscalía* and local judges), and the provision of a four-wheel drive vehicle and satellite telephone for the *Fiscalía* (the radios which they currently use betray their position to those involved in illicit activities). This relatively modest support will significantly improve conditions of regulation in the Sico-Paulaya Pilot Area, permitting a permanent presence (to which a commitment has been made) in the area of this key player in the regulatory system. Currently, in the absence of such support, the activities of the *Fiscalía* are limited to occasional visits to the area to carry out timber confiscations, which have if anything tended to undermine confidence in the judicial system. The project will also facilitate multi-stakeholder dialogue, in which both local and institutional stakeholders (including members of the judicial system) will participate, in order to identify locally-appropriate and acceptable strategies for making more effective the application of laws and regulations.

159. *Activity 2.4.3: Awareness raising and information supply to institutions and local populations regarding environmental services.* Opportunities for internalizing the costs and benefits of environmental services, as a means of adding value to standing forest and other natural resources, are limited by institutional and organizational obstacles at national and local level and poor understanding by local and institutional stakeholders of the underlying concepts; it can be concluded that the conditions do not yet exist for the introduction of schemes for the payment of environmental services. In both Pilot Areas, the project will therefore concentrate at this stage on facilitating the development of conditions for implementing environmental service payment schemes, through participatory multi-stakeholder workshops, training courses and informative materials. Project staff will establish a two-way communication with the staff of the IDB-funded MARENA project to interchange experiences and lessons learnt related to schemes for

the payment of environment services and the conditions required for their application. In the medium term, it is intended that these activities will lead to the introduction (supported by other funding sources as necessary) of schemes for the internalization of the costs of environmental service provision, thereby providing incentives for the managers and users of the sources of such benefits (e.g. forests which act as carbon sinks and promote hydrological processes) to protect them, at the same time protecting the global environmental values which they contain.

160. *Activity 2.4.4: Systematization of existing research results and support of collaborative research.* In order effectively to promote the use of appropriate technologies for resource management, which counter the threats to global environmental values set out in the previous section, the institutions, projects and other "service providers" active in the pilot areas need to base their actions on the results of objective and well-executed research. Even with a fully equipped and functioning information centre, as in the case of the Sico and Paulaya Pilot Area, significant gaps exist in the secondary information currently available in country for guiding management and planning activities and other development interventions; additional, site-specific, primary information is required.

161. The project will carry out a thorough initial review of the research carried out to date in the region, related to sustainable forest management, the management and use of other elements of the local biodiversity (see Activity 2.5.5), ecotourism, organic mulch based agriculture and other resource use activities which have potential to contribute to the conservation of global environmental values. On the basis of this review, a research strategy will be developed to ensure that outstanding needs for site-specific information are met. Agreements for collaborative research will be sought with national and regional academic and research institutions (including the National Autonomous University of Honduras, the Panamerican Agricultural School and CATIE), and national authorities (specifically DAPVS and DIBIO), involving overall research guidance and periodic advisory visits from academic and research staff; the participation of graduate and post-graduate students in data collection for medium and long-term research projects; and the provision of logistical and financial support for the realization of graduate and post-graduate thesis research into themes of relevance to the project, within the framework of structured medium and long-term research projects. A key requirement of such agreements will be that the information which results from the research be deposited locally (for example in the inter-institutional information centre in Sico) and nationally (for example in DAPVS and DIBIO); and that local stakeholders and members of local and national institutions are trained in the course of the research. The project will, on the basis of research proposals to be prepared in association with the regional counterpart research institutions, and in accordance with the research strategy document, leverage significant additional resources to accompany GEF investment in this activity. The scientific research proposed here will complement the participatory research proposed as Activity 2.5.6. The project will promote the participation of national governmental institutions including DAPVS and DIBIO in providing long term follow up to research activities to be undertaken, in order to further sustainability and national ownership.

162. This activity will contribute to the effectiveness of the different conservation and production strategies promoted, promote effective natural resource management planning

and increase local stakeholders' capacities to participate in natural resource management and planning.

163. ***Output 2.5: Local stakeholders in the pilot areas have increased awareness in, and capacity for applying IEM and alternative land use practices.*** Local stakeholders are currently faced by a number of barriers which limit their ability to participate in countering the threats to global environmental values in the pilot areas. Through the provision of technical assistance and organizational support by the project, stakeholders such as the scattered farmers living in the RPBR buffer zone will be able to carry out an increased range of productive activities which contribute actively to the conservation of global environmental values; have greater capacity to make their interests heard, through increased organization; and enjoy more secure rights over the use of natural resources in the face of threats to those resources, and the global environmental values which they contain, from other stakeholders. This output will complement Output 2.4, such that both financial and technical/organizational barriers will be overcome as a result of the project.

164. The provision of technical assistance through the project will complement that of other institutional stakeholders. In Sico-Paulaya, for example, the AFE-COHDEFOR/GTZ Río Plátano Biosphere Reserve Project is already providing technical support for the intensification of cattle ranching in the RPBR buffer zone; the GEF project will provide support instead in areas such as sustainable forest management, ecotourism and agricultural intensification.

165. The project will base its provision of technical support on sound existing research results (see Activity 2.4.4); and the results of new research to be promoted by the project, including participatory adaptive research to be undertaken be stakeholder farmers, which will help to ensure the relevance of the technologies to be promoted to specific local socioeconomic and biophysical conditions.

166. *Activity 25.1: Provision of organizational training and support to members of local communities.* Inhabitants of the RPBR are currently not in conditions effectively to protect the forests around them against deforestation by cattle ranchers and new migrant farmers. Training and support will be provided to these stakeholders, in order to strengthen their organizational capability to carry out sustainable forest management activities (to be promoted by the GTZ Río Plátano Project), to assert territorial rights over the land on which they are located (through the facilitation and funding of forest management plans, in collaboration with the GTZ Río Plátano Project), and to participate in decision making processes alongside other interest groups in the pilot area.

167. In addition, tree, soil and water resources in the Texíguat Pilot Area are threatened by weak regulation, due in large part to the limited regulatory capacity of local communities. Organizational training and support will be provided to local community organizations to promote this capacity.

168. This will address the threat of the conversion of forested lands in the RPBR buffer zone to extensive cattle ranching by increasing the value to local people of the forest and their capacity to defend the forest against conversion; and the threats to tree, soil and water resources in the Texíguat Pilot Area due to the application of unsuitable practices. This activity must be closely linked to the promotion of participatory decision making and planning processes (Output 2.1) to minimize the risk of conflicts.

169. *Activity 2.5.2: Awareness and capacity building among local organizations.* The policy and legal reforms to be promoted by the project (Output 1.2) will depend for their sustainability on the capacity of local stakeholders and the organizations which represent them to carry out further policy influence beyond the life of the project, to avoid reversals of the reforms achieved. Workshops and training courses will be held to develop the capacity of organizations representing local stakeholders to lobby at political level for advances in root issues such as land titling and carbon trading, which will contribute to the protection of global environmental values.

170. *Activity 2.5.3: Provision of training and marketing support for ecotourism to local stakeholders.* An additional limitation on ecotourism is the lack of experience of local stakeholders regarding the needs and interests of tourists, and how to meet them. Training will be provided (by means of punctual inputs by national specialist consultants and ongoing support by local Service Providers and PRONADEL staff) to local people in the two pilot areas in how to meet tourist needs (including catering, accommodation, guiding and transport) and avoid negative social and environmental impacts. This will remove an additional barrier to ecotourism, namely the lack of local capacity for management and service provision.

171. Marketing activities will be carried out to promote the pilot areas as a tourist destination, focusing especially (in the case of Sico and Paulaya) on high-paying international scientific tourists. Both the training and marketing activities proposed here will benefit from the research results made available through Activity 2.4.4.

172. *Activity 2.5.4: Provision of technical and marketing support to forestry cooperatives and forest product processors in the Sico and Paulaya Pilot Area.* The two legally established forestry cooperatives currently active in Copén and Paya villages have received NGO support for a number of years, and have achieved certification by the US-based company Smartwood that their operations are in accordance with the criteria for sustainable forest management defined by the internationally recognized Forest Stewardship Council, but require additional technical and marketing support to ensure sustainability. While outside of the RPBR itself, support to these cooperatives, which already have several years of experience, will have a valuable demonstrative value to the communities within the buffer zone to which organizational support will be provided as described above; it will thereby address the threat of the conversion of forest land to cattle ranching, by promoting the local valuation of the forest. Support will be provided in the form of short training workshops (on local processing, quality improvement, administration and marketing); periodic advisory visits by specialists; and the initial identification of, and establishment of contacts with, potential clients (although the training provided will enable the cooperatives to take over this responsibility themselves in the long term, by arranging support through national institutions and organizations such as CUPROFOR and REMBLAH).

173. Negotiations are underway to ensure the complementarity of the roles of the RPBR Project, the GEF project and other actors such as MOPAWI, WWF and the Danish NGO Nepenthes in the support of sustainable forest management in the pilot area. The RPBR Project, as part of AFE-COHDEFOR, will concentrate on supporting the preparation of forest management plans and the establishment of a wood use centre in Palacios, in association with the CUPROFOR Foundation (the specialty of which is the

promotion of the use of lesser-known timbers); the GEF project will focus mainly on the provision of technical support for forest management and timber processing, and the participatory development of an overall strategy for forest management as described under Output 2.1; and Nepenthes will support the marketing of timber from sustainably managed forests, including the promotion of timber certification.

174. In the provision of technical support to forestry producers and processors, project staff will use as guidance the analysis and recommendations contained in the report of the study of opportunities for community-level forest management, carried out during the PDF-B phase (Benítez, 2002), and the research results made available as described under Activity 2.4.4.

175. *Activity 2.5.5: Provision of technical, organizational and marketing assistance for the sustainable utilization of biodiversity in support of rural livelihoods.* A number of components of the biodiversity in the Texíguat Pilot Area appear to have potential for sustainable management, combining the conservation of environmental benefits with the generation of income for local populations.

- The cactus *Pachycereus schumannii* produces an edible fruit which is considered by local inhabitants as equal or superior in quality to the *pitajaya* cactus fruit currently sold in some supermarkets in Tegucigalpa. *P. schumannii* is of high global importance as its natural range is restricted to the Texíguat catchment and neighbouring Oropolí valley, and the rare arid scrub habitat where it occurs is under threat from burning and conversion to pasture; while limited income diversity among the area's inhabitants is leading to emigration and the application of damaging extensive land management practices. The sustainable harvesting and marketing of the fruit could supplement and diversify farmers' incomes, and at the same time motivate farmers to protect and promote the regeneration of this species and its habitat. Realization of the apparent potential of this species in this regard is currently limited by lack of market access and lack of information and experience regarding its management.
- *Leucaena salvadorensis* is a multi-purpose tree species already proven to be of high potential for use in plantations and agroforestry systems, equaling or exceeding the better known *L. leucocephala* in many respects (Hughes, 1998). This species is endemic to the Gulf of Fonseca drainage area, and the rare arid scrub habitat in which it occurs here (Map 8, Annex U ii) is under threat from land conversion. It is proposed that seed of this species be collected from trees in the arid part of the watershed where is occurs naturally, and subsequently distributed to farmers in neighbouring dry areas, a process which would be facilitated by a project such as the AFE-COHDEFOR/World Food Programme. This could provide income (either in the form of money or food, from the WFP) to the farmers producing seed, helping to buffer their livelihoods against the recurrent crop failures which characterize this area and at the same time motivating them to protect and promote *L. salvadorensis* trees in their fields. Farmers receiving the seed, meanwhile, would benefit from having increased on-farm resources of valuable tree germplasm, which would confer both livelihood and environmental benefits (including carbon capture and watershed protection).

- The extraction of resin from pine (*Pinus oocarpa*) trees in the forests of the upper part of the Texíguat watershed has the potential to generate income for to local people who enjoy usufruct rights, at the same time motivating them to protect the forests which are of importance for aquifer recharge and watershed protection. Currently, the resin is extracted using techniques which damage the trees.

176. In all of the three cases described above, further information is required before full scale investment in their promotion is justified. During its first year, the project will collect and systematize existing research findings and subsequently, as necessary, support collaborative research to fill information gaps regarding aspects such as market opportunities and management requirements (Activity 2.4.4), and facilitate participatory exploration of other components of local biodiversity which may lend themselves to sustainable management with combined local and global benefits. On the basis of this, the project will provide technical, organizational and marketing assistance to producers to promote the management of those components demonstrated in the initial stages to have significant potential.

177. *Activity 2.5.6: Promotion and facilitation of farmer-farmer interchanges and participatory action research on mulch and natural regeneration based farming systems in the Texíguat Pilot Area.* The promotion in the past of land management technologies by different institutions in the Texíguat Pilot Area has had limited impacts. Complementing the more formal research which it will also support (Activity 2.4.4), the project will assist in the identification and promotion of technologies appropriate to local socioeconomic and biophysical conditions by facilitating farmer-farmer interchanges and participatory action research in the Texíguat pilot area, including workshops involving both locally active institutions and farmers in which the participants will reflect upon and systematize the reasons for success or failure of technologies tried to date. Exchange visits will be facilitated between farmers in the Texíguat watershed and those in other parts of the country with similar conditions, who are able to demonstrate solutions potentially applicable to this area (for example the incorporation of scattered trees and the use of "*tapado*" mulch systems).

178. These processes will be facilitated by the national organization CIDICCO, which is currently active in participatory investigation and systematization of traditional vegetation management practices in the dry south. Emphasis will be placed on the establishment of processes of interchange and investigation which will outlast the project.

179. This activity will reduce land degradation and the generation through erosion of sediment load which affects the international waters of the Gulf of Fonseca.

180. *Activity 2.5.7: Promotion of Integrated Pest Management in the upper, vegetable growing part of the Texíguat Pilot Area.* The application of agrochemicals by vegetable growers in the upper part of the Texíguat watershed is contributing to the contamination of waters which drain eventually into the international waters of the Gulf of Fonseca. In collaboration with national academic and research institutions such as the Panamerican Agricultural School, courses will be provided to municipal authorities, PRONADEL staff and service providers, to raise their capacity to promote IPM as an alternative to agrochemical use.

181. **<u>Component 3:</u> The experiences learned at pilot area and project level have been captured and documented and have been successfully disseminated to a wide audience of funding agencies involved in development and conservation activities, both in Honduras and throughout Central America.** The cost-effectiveness of the project depends not only on it levering activities within PRONADEL which have positive impacts on global environmental values, but also on it modifying the behaviour of other projects, institutions and agencies throughout the region. It is beyond the scope of the project to ensure that the lessons learnt will actually be implemented by these players; rather, it will ensure that they have understood them and reflected on their relevance to and implications for their own particular conditions, and therefore have the awareness required to implement them if they so decide. The lessons to be disseminated nationally and regionally will refer both to the experiences in the pilot areas (these will be disseminated within PRONADEL as described in Output 1.1) and at project level; this latter level is of particular importance, as the functioning in practice of institutional and procedural arrangements for integrating rural development and conservation will be key determinants of the replicability of the model.

182. ***<u>Output 3.1</u>: Lessons learnt at pilot area and project level recorded and disseminated to stakeholders in conservation and rural development throughout Central America.*** As a result of the project, other institutional stakeholders (projects, institutions, NGOs and funding agencies) involved in or supporting rural development and conservation throughout Honduras and the rest of Central America will have access to the results of and lessons learnt by the project, in formats which will ensure that their awareness of the issues will be raised, enabling them to incorporate them into their activities, project designs and funding policies (even if it is beyond the scope of the project to ensure that they do so).

183. Target audiences for dissemination will include the following:

- PRONADEL technical staff working elsewhere in the country (see Output 1.1).
- Other rural development projects in Honduras, under the PRONADERS umbrella.
- Staff of DINADERS and SERNA.
- Other rural development and conservation projects in Central America (IFAD, GEF and other sources).
- High level decision makers within funding agencies responsible for formulating and supporting policies, programs and policies in the areas of conservation and rural development.
- Regional programs and projects implemented through CATIE.
- NGOs and grassroots organizations implementing rural development and conservation actions and policy advocacy.
- Future technical field staff who will, on graduation, be responsible for implementing rural development and conservation actions at field level.
- Future decision makers, policy formulators and project directors.

184. *<u>Activity 3.1.1</u>: Analysis and systematization of lessons learnt regarding the model of integration of conservation and rural development considerations at project level.* To supplement the pilot area specific lessons to be systematized as described in Activity 1.1.2, methodical systematization will be carried out of the experiences with all of the activities, described under Output 1.1, related to the mainstreaming of concerns of global

environmental values into PRONADEL. This activity will be of key importance for validating and demonstrating the central hypothesis of the GEF project, that modest complementary funding by environmental sources (in this case GEF) can catalyze significant changes in the environmental impacts of rural development projects, thereby maximizing the efficiency of the use of environmental funds and promoting the environmental sustainability of the use of rural development funds.

185. Information will be collected on the lessons learnt at both pilot area and project level according to the indicators and sources of verification set out in the logical framework (Annex A). Periodic consultancy inputs will be used to analyze and systematize the information gathered in formats appropriate for dissemination among the target audiences.

186. *Activity 3.1.2: Facilitation and support of inter-institutional forums and exchanges*. The project will disseminate and discuss lessons learnt by means of the facilitation of forums, seminars and workshops in which stakeholders and interested parties throughout Honduras and Central America will participate. Other means for information dissemination will include the preparation and distribution of bulletins, email listings, website postings and the reciprocal exchange visits to witness experiences at first hand. In addition, action learning will be promoted, through the secondment of staff between projects and the active participation of counterpart government institutions and other organizations in the project's activities. Additional details of the project's strategy for the dissemination of lessons learnt are presented in 2 P.

187. ***Output 3.2: Key government institutions (SAG/UPEG, SAG/DINADERS) and SERNA) have increased awareness and capacity for applying of integrated approaches to conservation and rural development.*** SAG and SERNA are key national level stakeholders with which the project will relate directly, through the provision of advice and the strengthening of capacities. The capacities to be strengthened will include their awareness of the issues related to the application of integrated approaches to conservation and rural development; their access to planning instruments (such as relevant indicators for monitoring and evaluation) which will facilitate their application of the approach; and information on socio-economic and biophysical factors necessary for decision making.

188. *Activity 3.2.1: Provision of environmental advice to SAG and SERNA.* PRONADERS is the umbrella programme for rural development projects in Honduras. Its staff has a heavy workload and is subject to periodic political pressure to promote agricultural production at the expense of rural development and environmental considerations. From year 3 of the project on, the Project Coordinator, with support from consultants in Biodiversity and Monitoring and Evaluation, will provide advice on the environmental (integrated ecosystem management) components of projects under the umbrella of PRONADERS. Areas on which the adviser will focus will include:

- the definition of transversal environmental indicators and the application of environmental monitoring and evaluation across the programme
- the identification at national level of sites of environmental priority or vulnerability, and the definition of environmental guidelines for projects working in such sites

- the systematization and replication between projects of experiences and lessons learned in relation to integrated ecosystem management.

189. The advisers will also support and advise the Executive Director of DINADERS on policy formulation processes at ministerial and congressional level in relation to environmental issues in policies and legal instruments, and SERNA Directorates (particularly the Directorates of Environmental Evaluation and Control, Biodiversity and Environmental Management) on opportunities and mechanisms for integrating rural development, environmental and conservation considerations.

2 b iv *Global environmental benefits of the project*

190. **National and regional.** In addition to protecting global benefits in the two pilot areas, the project will result in PRONADEL taking considerations of conservation and natural resource management into account more effectively at national level, and will also disseminate lessons on these issues to governments, NGOs and other rural development projects across the Mesoamerican region, in a way that will permit them similarly to take them into account. It is expected that the outcome of these changes will be improved protection of global environmental values throughout the whole of PRONADEL's area of influence and also across Mesoamerica as a whole; however, it is beyond the scope of this project to guarantee that such benefits are achieved or to predict them quantitatively.

191. **Sico-Paulaya Pilot Area.** The project will result in reduced deforestation in the pilot area. Of particular significance for global benefits are the following areas (Map 10, Annex U i):

- *The buffer and core zones of the Río Plátano Biosphere Reserve*. Reduction of the advance of the agricultural frontier here will protect the high ecosystem-level biodiversity of the RPBR (the reserve is remarkable in that includes a large number of ecosystems in one contiguous area, ranging from humid montane forest to riverine, lagoon and coastal systems), and the habitat of globally threatened fauna species including the Jaguar (*Panthera onca*) and Harpy Eagle (*Harpia harpiya*) whose survival and reproductive success depend on the existence of large expanses of intact forest. Protection of the RPBR buffer zone will maintain its capacity to "buffer" the core zone against external influences. Regional-level connectivity will be promoted by the reduction of threats to the buffer and, indirectly, the core zones of the RPBR, as the reserve occupies a key location within the Mesoamerican Biological Corridor.
- *The Los Mangos corridor*. Protection of this corridor, which links the RPBR and the Sierra Río Tinto across the upper part of the Sico-Paulaya valley, is of particularly importance for connectivity. In the absence of the project, deforestation here is likely to continue unabated, resulting in the eventual severance of this crucial link between Corridors II (Soledad, stretching from the RPBR to the Bosawás Reserve in Nicaragua) and III (the cordillera running from Sierra de Agalta to Sierra Río Tinto) of the Mesoamerican Biological Corridor. The project will also promote cross-valley connectivity in the agroecosystem elsewhere in the valley.

- *Moderately drained lowland forest.* In the absence of the project, this forest type is likely completely to disappear within the lands for which title was given to *campesino* groups on the western side of the valley during the 1990s. While this ecosystem is not in itself globally rare or necessarily primary, its loss will reduce cross-valley connectivity, as these fragments provide stepping stones of habitat for fauna crossing between the RPBR and the Sierra Río Tinto. Riverside bands of vegetation are likely to be particularly important in this respect, given that most of the tributary creeks of the Paulaya river run perpendicular to the main axis of the valley, providing direct routes from one side of the valley to the other.

192. These reductions in deforestation rates will also have significant carbon benefits. Under the baseline scenario, deforestation of the buffer zone would lead to the liberation of between 900,000t and 1,500,000t of carbon over the 6 year project period (2003-2009)[5]; forest loss in the Los Mangos corridor over the same period, under the "no-project" scenario, would be between 475 and 800 ha, equivalent to a total loss of stored carbon of between 78,000t and 130,000t; and deforestation of moderately drained evergreen forest (estimated at between 3,250 and 5,400ha) would release between 530,000 and 880,000t of stored carbon. Total baseline carbon loss is therefore estimated at between 1.5 and 2.5 million tonnes. Assuming that the project results in a 50% reduction in this loss (taking into account that its effect in countering deforestation will not be immediate), the benefit of the project is estimated at between 750,000 and 1,250,000 tonnes of carbon stocks protected from liberation.

193. In the absence of the project, continued conversion of forest on steep lands to pasture would lead to the degradation of fragile soils, through compaction and fertility loss; this would impede the regenerative processes which typically re-establish high forest in the small gaps normally caused by tree fall or low intensity swidden agriculture. The protection of natural ecosystems from disturbance will reduce the loss of ecosystem resilience and the degradation of the capacity of the soil to sustain ecosystem function and productivity, thereby addressing the OP12 issue of land degradation.

194. **Texíguat Pilot Area.** This is a prime example of an area undergoing severe processes of land degradation, in the form of soil erosion, the interruption of hydrological processes and the modification of natural biodiversity and ecological function. These processes represent a downward spiral, affecting the area's natural resilience and its ability to support human livelihoods.

195. The principal "theme" here will be the combat of processes of land degradation; however the project will also have significant benefits in terms of the conservation of

[5] Woomer *et al*. (1998) estimate an immediate loss of around 80% of stored carbon on conversion of tropical forest in Cameroon to slash and burn agriculture, followed by recuperations to around 55% and 35% of initial levels in successive subsequent fallow cycles and a reduction to around 15% of original levels on eventual conversion to pasture or continuous cropping. Applying these proportions to the assumed 189t of carbon originally stored per hectare in the forest in Sico and Paulaya (Section 2 b i (2.5)), it may be assumed that around 163t of carbon are liberated for each hectare cleared. A direct extrapolation of current deforestation rates (Maps 11 and 12 in Annex 2 U i) over the 6 years of the project period (2003-2009) would give a total liberation of 1,218,588t of carbon. The range presented here uses a 25% margin of error in recognition of the difficulty of assessing the net effect of changes in conditions between the 1995-2001 and the 2003-2009 periods, summarized in Table 2.

agroecosystem biodiversity and indirect impacts on coastal ecosystems and transboundary waters of international importance, and on the global environmental values of population attraction zones elsewhere in the country. There will be complex interrelations between these themes.

196. The project will reduce land degradation processes by promoting sound vegetation management, based on the use of native germplasm and traditional low-input systems, and simultaneously will promote the management and conservation of useful biodiversity in agroecosystems, in ways which both directly and indirectly contribute to local and global benefits. Low input basic grain production systems featuring zero tillage and "no-burn" site preparation, combined with the active protection by farmers of dispersed trees in fields due to their use value, have significant benefits in terms of soil conservation (as they minimize both raindrop impact and cross-surface erosion) and hydrology (as the woody perennial component facilitates infiltration and contributes to soil stability). This will reduce the sediment load affecting the transboundary waters and Ramsar site of the Gulf of Fonseca; it will also increase the area's capacity to support human population and productive activities, thereby indirectly reducing pressures to migrate to agricultural frontier areas such as the globally important humid forest reserves of the north coast.

197. At the same time, these low intensity traditional systems are of key value for the *circa situm* conservation of globally important species-level biodiversity. A prime example is *L. salvadorensis*, a tri-national endemic only found in the Gulf of Fonseca drainage, which is highly important at global level as a multi-purpose tree to rival its widely promoted congener *L. leucocephala* (Hughes, 1998). The Texíguat valley represents the climatic extreme of this species' range, making the populations there significant in terms of population diversity and potential for the breeding and selection of the species for international use. Other globally important species include the very rare and spectacular columnar cactus, *P. schumannii*, whose global distribution is limited to this valley and the nearby Oropoli valley and the shrub *Robinsonella erasmo-sosae*, whose known global distribution is limited to this valley. 14 species found in the area are classified as "Black" or "Gold" stars (*sensu* Hawthorne and Abu Juam, 1995), meaning that they have very restricted ranges and are therefore vulnerable to changes in conditions (see Annex H). These are prime examples of "agroecosystem" species which depend for their survival on *circa situm* conservation.

198. In terms of ecosystem biodiversity, the project will contribute directly to the conservation of the globally rare microfoliate deciduous scrub ecosystem, which is found in Central America only in this valley, the nearby Oropoli valley and the Aguán valley also in Honduras, and the Motagua valley in eastern Guatemala (Map 14 in Annex U ii); also to a number of nationally rare ecosystems including *lower montane seasonal evergreen forest* and *submontane seasonal evergreen forest* (Map 8).

199. The increase in the woody perennial component of the agricultural systems will, in addition to protecting soil and water resources and promoting the *circa situm* conservation of biodiversity, increase the amount of carbon stored in the agroecosystem, both above and (significantly in the case of the dry forest zone) below ground. Assuming that the total carbon stored in this agroecosystem is 4,125,000 tonnes (see Annex H) and

that the project will increase the carbon stored over 50% of this area by between 10 and 20%, its contribution to global carbon sinks will be between 206,250 and 412,500 tonnes.

2 b v ***Incremental cost estimation based on the project logical framework***

200. The incremental costing logic in tabular form, with details of domestic and global benefits per output is presented in the table below. Annex S i presents the incremental cost estimation of the project's outputs along with baseline figures. The GEF project will directly affect the entire remaining budget of the PRONADEL project, resulting in all of the activities funded by that project being carried out in ways which promote the conservation of global environmental values. In the absence of the GEF project, there would be a significant risk that the use of these resources in support of productivity-focused economic activities would be seriously detrimental to global environmental values. The entire remaining budget of PRONADEL is therefore considered as co-financing and will more than offset any local benefits incurred. It has been included under Objective 1, except for $0.9 million of IFAD funds which are assigned to the support of environmental projects at municipal level and which are considered as baseline; $4.9 million which will be spent in the pilot areas and is therefore considered as baseline for activities under Objective 2 and $0.8 million which are assigned to the PRONADEL's Process Improvement Component in DINADERS and are considered baseline under Objective 3.

201. Significant baseline activities have been identified among a diversity of projects, NGOs and entities of national and local governments in the pilot areas, demonstrating that broad-based commitment exists there to the conservation of global environmental values. The activities of the GEF project will complement these baseline activities, filling in gaps and removing obstacles to their success, and facilitating constructive dialogue and the interchange of experiences. Specifically, the GEF project will facilitate the development of planning frameworks, at ecosystem, watershed or other level, within which baseline activities will be carried out, and provide technical and information support to increase their effectiveness and relevance.

202. At the national level, there is a high level of baseline activity by projects whose areas of influence overlap with that of the PRONADEL project. The majority of these projects include components of both rural development and conservation, recognizing the importance of a solid natural resource base for sustainable rural development and the potential for achieving conservation goals through community-based activities.

Output	Cost (US$ Millions)	*Domestic Benefit*	*Global Benefit*
1.1 Environmental mainstreaming in PRONADEL	Baseline = 96.0	PRONADEL and CLAPs apply existing environmental checklist to project proposals presented for funding, resulting in the filtering out of most projects likely to cause degradation of soil, water and forest resources. However the checklist is poorly understood and applied, limiting opportunities to identify impacts and their significance, and mitigation measures. PRONADEL staff members continue to emphasise short term production at the expense of natural (soil, water and forest) capital, promoting practices which either degrade natural capital or fail effectively to develop it, and missing opportunities for combining local economic development with resource conservation.	Funding of productive initiatives by PRONADEL fails to take into account considerations of biodiversity and other global environmental values, leading to the degradation of globally important ecosystems and populations. Existing provisions for the protection of forests around water sources confer some carbon storage benefit, and incidental ecosystem and species protection, but this is not focused on priority areas. PRONADEL staff members promote practices which degrade, or fail to promote, global benefits including biodiversity in agroecosystems and sustainable land use systems, and miss opportunities for combining local economic development with the conservation of global benefits.
	Alternative= 135.75 (GEF = 0.39 Others = 39.36) Increment = 39.75	Improved mechanisms, knowledge and awareness in PRONADEL lead to more effective evaluation of potential impacts of projects on domestic benefits (soil, water and forests) and identification of measures to mitigate impacts. Members of productive groups, PRONADEL and CLAPs formulate and approve more projects which combine domestic and global benefits. PRONADEL staff members promote practices which combine economic development and domestic resource conservation, and take into account the interests of diverse stakeholder groups rather than just the programme's direct target population.	Improved mechanisms, knowledge and awareness in PRONADEL lead to more effective evaluation of potential impacts of projects on global benefits (biodiversity, land and carbon) and identification of measures to mitigate impacts. Members of productive groups, PRONADEL and CLAPs formulate and approve more projects which combine domestic and global benefits. PRONADEL staff members promote practices which combine economic development with the conservation of global benefits, including biodiversity, carbon and land and ecosystem resilience.
2.1 Application of IEWM in pilot areas	Baseline = 0.25	Inputs by DINADERS and the Pastoral Social give continuity to discussion processes among stakeholder groups in SPPA. However a lack of solid, participatory and well-informed planning processes leads to individual stakeholder sectors pursuing their economic interests at the expense of domestic benefits to others, resulting in the deforestation of water sources, the overuse of water resources (in TPA) and the degradation of fish and shrimp stocks (in SPPA). In TPA, lack of supra-municipal planning fails to promote rational resource use at catchment level.	In SPPA, lack of consensus or objective prioritization of actions leads opportunist stakeholders to continue degrading global environmental values by clearing forest areas, thereby liberating carbon and reducing species and ecosystem diversity. In TPA, lack of planning at supra-municipal level leads to missed opportunities for combining domestic and global benefits, and watershed degradation affects the global environmental values of the Gulf of Fonseca.
	Alternative = 0.70 (GEF = 0.45 Others = 0.0) Increment = 0.45	Natural resources and the opportunity costs of resource conservation are equitably distributed among different stakeholder groups in the pilot areas on the basis of negotiation, and improved coordination and planning of actions leads to more effective and efficient protection of shared natural resources (soil, water and forests).	Improved coordination and planning of actions leads to more effective and efficient protection of forest resources and biodiversity which confer both local and global benefits.

2.2 Improved policy and regulations through increased lobbying capacity	Baseline = 1.09	Laws and policies fail to reflect local needs and conditions, fomenting practices which degrade natural resources of local importance (soil, water, forests) and reducing the effectiveness of productive and regulatory solutions to degradation.	Laws and policies fail to reflect local conditions, fomenting practices which degrade natural resources of global importance (carbon, biodiversity, land and ecosystem sustainability) and reducing the effectiveness of productive and regulatory solutions to degradation.
	Alternative = 1.18 (GEF = 0.09 Others = 0.0) Increment = 0.09	Increased relevance of laws and policies to local conditions avoids promoting resource degradation and leads to increased effectiveness of productive and regulatory solutions to degradation.	Increased relevance of laws and policies to local conditions avoids promoting the degradation of global benefits and leads to increased effectiveness of productive and regulatory solutions to degradation.
2.3 Pilot Area demonstration projects in alternative productive and land-use practices.	Baseline = 1.60	PRONADEL finances environmental investment projects in each municipality, though these are insufficient in scale, and lack sufficient guidance, to confer significant domestic benefits in terms of natural resource conservation. Otherwise, only those activities which are justified in strictly economic terms are financed by PRONADEL and other development projects and organisations. Investment in innovative activities, compatible with the conservation and promotion of natural capital (soil, water and forests) is limited by financial, technical and infrastructural barriers.	Only those activities which are justified in strictly economic terms are financed by PRONADEL and other development projects and organisations. Investment in innovative activities, compatible with the conservation and promotion of global benefits (biodiversity, carbon, land and ecosystem resilience) is limited by financial, technical and infrastructural barriers.
	Alternative = 2.68 (GEF = 1.08 Others = 0.0) Increment = 1.08	Stocks of natural capital (soil, water, forests) are actively promoted through initiatives supported by direct grant financing, or made economically viable by grant investment in the removal of technical and infrastructural barriers, leading to win-win situations in which natural resource conservation and economic development are achieved simultaneously.	Global benefits (biodiversity, carbon, land and ecosystem resilience) are actively promoted through initiatives supported by direct grant financing, or made economically viable by grant investment in the removal of technical and infrastructural barriers, leading to win-win situations in which the conservation of global benefits and economic development are achieved simultaneously.
2.4 Institutional strengthening in pilot areas.	Baseline = 1.23	PRONADEL/IFAD finances training and equipment support to UMAs; however the low level of investment and the lack of guidance result in municipal planning and control of natural resources continuing to be weak. In SPPA, Pastonal Social continues to strengthen Fundación Popol Nah Tun and the *campesino* sector, however other sectors are not similarly strengthened, limiting possibilities of balanced dialogue on the management and protection of natural resources and local benefits. Regulation of resource use is ineffective due to the weakness of State institutions and lack of coordination. In TPA, ineffective technical support by institutions leads to a perpetuation of the vulnerability of production systems and rural livelihoods to environmental shocks.	PRONADEL support to UMAs fails to take into account global benefits which do not coincide with local benefits. In SPPA, the Río Plátano Biosphere Reserve Project strengthens AFE-COHDEFOR in the protection of global benefits in the buffer zone, but poor governance conditions and the lack of capacity among other institutional actors undermine their regulation activities, resulting in the continued loss of biodiversity and carbon stocks through deforestation. In TPA, lack of clarity among institutions on concepts related to natural resource management perpetuates the ineffectiveness of their inputs, leading to continued land and ecosystem degradation and sediment impacts in the Gulf of Fonseca.

	Alternative = 1.91 (GEF = 0.68 Others = 0.0) Increment = 0.68	Increased awareness, information availability and coordination allow institutions in the pilot areas to identify and apply effective regulatory initiatives and technical support solutions, leading to improved conservation of natural resources which confers domestic benefits (water supply, soil productivity, forest product availability, reduction of vulnerability to environmental shocks).	Increased awareness, information availability and coordination allow institutions in the pilot areas to identify and apply effective regulatory initiatives and technical support solutions, leading to improved conservation of global benefits (biodiversity, carbon storage, land and ecosystem resilience).
2.5 Increased capacities among local stakeholders in pilot areas	Baseline = 6.38	Due to lack of organization among local stakeholders, their natural resources suffer degradation from uncontrolled and inappropriate extractive and productive activities (e.g. forest clearance for cattle, excessive water use for irrigation). Due to lack of technical knowledge, their productive activities are limited in scope, resulting in missed opportunities actively to contribute to the conservation of natural resources.	Due to lack of organization among local stakeholders, the global environmental values (biodiversity, carbon, land and ecosystem resilience) within their areas of influence suffer degradation from uncontrolled and inappropriate extractive and productive activities. Due to lack of technical knowledge, their productive activities are limited in scope, resulting in missed opportunities actively to contribute to the conservation of global environmental values.
	Alternative = 7.64 (GEF = 1.26 Others = 0.0) Increment = 1.26	In SPPA, increased organization and usufruct rights among inhabitants of the RPBR buffer zone allows them to counter degradation of the forest, soil and water resources on which they depend by extensive cattle ranching and migratory farming. Local stakeholders' perceptions of benefit flows to them from forest and aquatic ecosystems are increased, leading to increased protection and increased compatibility between productive activities and the conservation of natural resources. In TPA, the sustainability of production systems is increased, and their vulnerability to environmental shocks, are reduced by the identification and application of appropriate resource management practices.	In SPPA, increased organization and usufruct rights among inhabitants of the RPBR buffer zone allow them to counter deforestation processes which are degrading biodiversity and carbon stocks. Increased perceptions on the part of local stakeholders of the domestic benefits of ecosystems lead them incidentally to increase the protection of global environmental values. In TPA, increased sustainability of production systems is accompanied by increased resilience of land and ecosystems (reduced land degradation); while the generation of income from specific components of the biodiversity (e.g. *L. salvadorensis* seed and *P. schumannii* fruit) leads to their increased protection.
3.1 Lessons learnt disseminated regionally	Baseline = 0.0	Projects, programmes and institutions throughout Central America continue to support productive activities which degrade natural resources; opportunities are missed to generate increased local income through the innovative use of biodiversity and natural resources.	Projects, programmes and institutions throughout Central America continue to support productive activities which degrade global environmental values.

	Alternative = 0.15 (GEF = 0.15 Others = 0.0) Increment = 0.15	Projects, programmes and institutions throughout Central America identify and promote productive activities which contribute to the sustainable management of natural resources, conferring increased long term domestic benefits in terms of water supply, soil productivity and forest product availability.	Projects, programmes and institutions throughout Central America identify and promote productive activities which contribute to the conservation of global environmental values (biodiversity, carbon, land and ecosystem resilience).
3.2 Increased institutional capacities at national level	Baseline = 0.80	Projects, programmes and institutions throughout Honduras continue to support productive activities which degrade natural resources; opportunities are missed to generate increased local income through the innovative use of biodiversity and natural resources.	Projects, programmes and institutions throughout Honduras continue to support productive activities which degrade global environmental values.
	Alternative = 0.90 (GEF = 0.10 Others = 0.0) Increment = 0.10	Projects, programmes and institutions throughout Honduras identify and promote productive activities which contribute to the sustainable management of natural resources, conferring increased long term domestic benefits in terms of water supply, soil productivity and forest product availability.	Projects, programmes and institutions throughout Honduras identify and promote productive activities which contribute to the conservation of global environmental values (biodiversity, carbon, land and ecosystem resilience).
	Base-line = 107.35		
	Alternative = 150.91		
	Total Project = 43.56 [of which GEF will contribute 4.20 and others 39.36]		

2 c **Sustainability**

203. The project's demonstration value hinges on the sustainability of its interventions. The following aspects of the project will be of key importance to ensuring its sustainability:

- Identifying and facilitating "win-win" situations in which global benefits are promoted through activities (such as ecotourism and sustainable forest management) which at the same time confer economic benefits to local stakeholders.
- Seeking and taking advantage of areas of complementarity between global and local environmental benefits: for example, the conservation by local people of forests which are important to them as water sources and at the same time have global value, and the rational management of soil capital, which reduces the sedimentation of international water bodies and emigration pressures on humid forest areas, and at the same time safeguards agricultural productivity.
- Embedding resource management and conservation activities in planning frameworks whose themes and geographical boundaries are of relevance to local stakeholders.
- Developing the human and social capital and institutional capacities required to ensure adequate regulation, planning and participatory decision making in the long term.

- Systematization and dissemination of lessons learnt to other institutional stakeholders throughout the region capable of replicating them in the future.
- The recognition of the national and regional nature of the processes affecting global environmental values (beyond the immediate local pressures), namely the "expulsion/attraction" dichotomy between dry and humid zones, reflected in the choice of the pilot areas.
- Promoting modifications at political and regulatory level in order to influence the structural factors which drive the pressures felt at local level.
- The development of the conditions required for the promotion of economic instruments based on sustainable sources of income and local stakeholders' capacity to pay.

2 d Replicability

204. ***Areas of replicability.*** The two pilot areas have been selected to maximize the replicability of the lessons learnt there. Sico-Paulaya is typical of agricultural frontier areas affecting globally-important protected areas in the humid zone of Mesoamerica, characterized by high levels of population attraction and rapid rates of forest conversion due to a combination of smallholder agriculture, extensive cattle ranching, land speculation and timber extraction. Other globally important protected areas with similar characteristics, to which the lessons learnt here will be applicable, include: the Maya Biosphere Reserve in the Petén region of Guatemala; the Bosawás Biosphere Reserve in the Nicaraguan Mosquitia; the Gran Reserva Indio Maíz in the Río San Juán area of Nicaragua; the Darien National Park in Panamá; and, in Honduras, the Tawakha and Patuca National Parks which form part of the same Soledad Corridor as the Río Plátano and Bosawás Biosphere Reserves (Map 13 in Annex U i).

205. The Texíguat watershed contains a diversity of ecosystems and conditions (ranging from dry forest to montane cloud forest) in common with most other watersheds in Central America, due to extreme local variations in climate in this highly dissected region. The dominant dry zone of the Texíguat watershed exhibits biophysical, social and land use conditions which are repeated extensively throughout Central America. The dry Pacific slopes of El Salvador and Nicaragua, and the eastern part of Guatemala, show similar phenomena of land degradation and population expulsion to cities and humid forest areas; the climatic conditions and the original vegetation type are similar to those of the coastal areas of the southern Mexican states Oaxaca and Guerrero, and the Guanacaste area of Costa Rica, but these two areas have been subjected to different social and land use processes. The area also has much in common with the dry interior valleys of the region, including the Aguán valley of northern Honduras and the Motagua valley of eastern Guatemala, both of which contain arid scrub habitat (Map 14 in Annex U ii). The *Pinus oocarpa* forests which occupy much of the upper part of the watershed (Map 8) represent the dominant vegetation in the interior of Honduras; and similar cloud forest remnants to those which occur in the highest part of the watershed occur on hill outliers throughout the whole of Central America and are similarly subject to pressures from vegetable growing and coffee.

206. In addition to the areas mentioned, whose biophysical and socioeconomic characteristics are similar to those of the pilot areas, the lessons learnt will be replicable elsewhere in the region, wherever rural development projects are active in the promotion of productive activities in areas of significant global environmental values.

207. ***Audiences for replication.*** The lessons learnt in the project will be disseminated to the following principal categories of recipient, with the goal that they will apply them in their areas of influence (full details of the dissemination and replication strategy are presented in Annex P):

- PRONADEL technical staff at Direction and field levels, working in the remainder of that program's area of influence;
- Staff of other rural development projects within Honduras and elsewhere in the Central American region;
- Staff of protected areas throughout Central America.

208. ***Strategies for replication.*** Strategies for the replication of lessons learnt during the project's execution are presented in section 2 b iii and Annex P.

2 e Stakeholder Involvement

209. During the project preparation phase, care has been taken to involve stakeholders at a range of levels, from ministerial to community level, to ensure full acceptance of the project once implemented. Similarly, provision will be made for ample participation during the implementation phase, but with an emphasis more on the use of long term committees and other entities than the one-off interviews, meetings and workshops which characterised the PDF-B phase. Details of the form of involvement of the different stakeholders during the Project Preparation Phase, and arrangements and structures for the participation of other stakeholders in the implementation of the project, are presented in Annex D.

2 f Monitoring and Evaluation

210. The Logical Framework which will form the basis for the Monitoring and Evaluation system is presented in Annex A. Details of the project's Planning, Monitoring, Evaluation and Systematization system are presented in Annex N. Procedures for formal evaluations and reporting of project progress with relation to the Logical Framework are set out below.

211. The Logical Framework and M&E system of the GEF project will be closely linked to those of PRONADEL. The M&E systems of both PRONADEL and the GEF project will feed into the system (SIPSE) used by PRONADERS. In the pilot areas (related to Component 2 in the Logical Framework), the GEF project will rely, for monitoring and evaluation purposes, on the information collected by PRONADEL in its baseline study, compatibility between the two projects' information needs having been assured during the PDF-B phase. During the first 6 months of project implementation, a baseline study will be carried out to measure the indicators proposed in the Logical Framework for Objectives 1 (related to mainstreaming of environmental considerations in PRONADEL) and 2 (related to dissemination).

Reporting procedures

212. *Project Inception Report*. The Project Coordinator will submit an inception report, in English, no later than three months after project start-up. This will include fine tunings of the project's workplan for the first year of the project, with clear indicators and corresponding means of verification, fine tuning of TORs for project professionals and sub-contractual services, reports on progress to date on project establishment and start-up activities, and amendments to project activities/approaches, if any. The report will be submitted, through UNDP Honduras, to UNDP-GEF offices in Mexico and New York. The report will be copied, in Spanish, to the Vice-Minister of Agriculture as National Director of the Project, the Minister of SERNA as GEF focal point, and the Directors of PRONADEL and DINADERS.

213. *Internal monthly reports*. Field staff in the two pilot areas will submit monthly reports of activities in the pilot areas to the Environmental Adviser based in PRONADEL, who will in turn submit monthly reports of activities in the pilot areas and in PRONADEL to the Project Coordinator.

214. *Quarterly reports to national counterparts*. The Project Coordinator will provide quarterly reports in Spanish to the Director of PRONADEL (copied to both PRONADEL and GEF field staff in the pilot areas) on activities related to the pilot areas and PRONADEL; and to the Vice-Minister of Agriculture and the Minister of SERNA as GEF focal point (copied to the Directors of PRONADEL and DINADERS) on progress with the project in general.

215. *Quarterly reports to UNDP-GEF*. The Project Coordinator will submit quarterly progress reports in English to the UNDP-GEF offices in Mexico and New York, copied to the Coordinators of the Environmental and Rural Development Clusters in UNDP Honduras and to IFAD in Rome.

216. *Annual Project Report (APR)/Project Implementation Review (PIR)*. The Project Coordinator will prepare and submit APR/PIR as per guidelines set for the same. APR/PIR will inform the Tripartite Review meeting (see below) and will therefore be circulated to the participants well in advance.

217. *Project Terminal Report*. The final APR/PIR will be regarded as the Project Terminal Report for consideration at the terminal tripartite meeting. The draft report will be distributed sufficiently in advance to allow in-house review and technical clearance by the GEF prior to the terminal tripartite review. This report will include, but not be limited to, an analysis of lessons learned and an identification of best practices in the inclusion of environmental consideration in rural development projects.

Project Evaluations

218. *Tripartite Review (TPR)*. The project will be subject to Tripartite Review (TPR) at least once every twelve months by the GoH, the executing agency and UNDP. The first such meeting will be held within the first twelve months of the start of full implementation.

219. *Intermediate Project Evaluations*. The project will be subject to independent evaluation 2 and 4 years after start-up. The timing of the first evaluation will permit any modifications necessary in the project's relation with PRONADEL to be implemented

during the 2 years that remain of the overlap between the project and PRONADEL. The second evaluation, which will coincide with the start of the winding down of PRONADEL's field operations, will focus on strategies to be applied during the last two years of the project for assuring long term sustainability.

220. *Final evaluation.* In accordance with UNDP/GEF M&E procedures, during the last six months of implementation the project will carry out an independent final evaluation to assess project achievement of objectives and impacts and document lessons learned.

3. FINANCING

3 a Financing Plan

3 a i Project costing by output

The cost of the project by output and source (GEF and others) is presented in the Budget below as well as in Annex S i.

Components and Outputs	Total Cost
Component 1: Considerations to achieve multiple global environmental benefits using IEM principles have been successfully mainstreamed into PRONADEL´s national procedures and operations and are effectively producing the expected results.	**$39,756,975**
Output 1.1: Environmental mainstreaming in PRONADEL	$39,364,468 (Others) $392,507 (GEF)
Component 2: The approach to integrate IEM principles in PRONADEL's operations has been successfully demonstrated and validated to yield multiple global environmental benefits in two pilot areas	**$3,568,997**
Output 2.1: Application of cross-sectoral and participatory planning for IEWM in the two pilot areas.	$455,539 (GEF)
Output 2.2: Improved policy and regulations from increased lobbying capacity	$86,143 (GEF)
Output 2.3: Demonstration projects in alternative productive and land-use practices established in the pilot areas.	$1,082,258 (GEF)
Output 2.4: Key institutions in pilot areas have increased awareness in, and capacity for applying and enforcing IEM.	$681,151 (GEF)
Output 2.5: Local stakeholders in the pilot areas have increased awareness in, and capacity for applying IEM and alternative land use practices.	$1,263,906 (GEF)
Component 3: The experiences learned at pilot area and project level have been captured and documented and have been successfully disseminated to a wide audience of funding agencies involved in development and conservation activities, both in Honduras and throughout Central America	**$245,032**
Output 3.1: Lessons learnt disseminated regionally	$146,409 (GEF)
Output 3.2: Increased institutional capacity at national levels	$98,623 (GEF)
TOTAL PROJECT COST	***43,571,004***

3 a ii. Output financing plan with co-financiers

Details of co-funding sources are presented in Annex S i.

3 b Cost-effectiveness

3 b i. Estimate cost effectiveness, if feasible.

221. The project's cost effectiveness is maximized by its link to a major IFAD rural development project, whose operations will be modified throughout its area of influence by the relatively modest investment of GEF funds (which amount to less than 10% of the budget of the IFAD project); and by its emphasis on dissemination and replication at a regional (Central American) level which should lead to improved consideration of global environmental values on the part of a number of projects, institutions and governments throughout the region. This replication potential is promoted by the choice of the pilot

areas, both of which include conditions widely repeated throughout Central America. Cost-effectiveness in the pilot areas is assured by designing each of the project's activities there as a response to specific threats identified, in thorough and objective threats analyses carried in each area, to global environmental values (see Annexes I and J).

3 b ii. Describe alternate project approaches considered and discarded.

- Carrying out demonstration activities in other pilot areas. The process of selection of the pilot areas, and justifications for the rejection of other areas considered, are presented in Annex G. The two pilot areas selected offer greater opportunities for replication, efficiency and inclusion of OP12 themes than the three originally proposed.

- Alternative forms and degrees of relation with the counterpart project. The link between the GEF project and a rural development project is central to the General Objective. PRONADEL was chosen as the counterpart project due to its timing, which overlaps with that of the GEF project by 4-5 years, and its scale, which offers high cost-effectiveness of the GEF investment and also the opportunity to work in diverse biological conditions. A number of models of institutional relationship with PRONADEL were considered, and discussed firstly at Vice-Ministerial level and subsequently in a workshop in which members of PRONADEL and DINADERS participated. The option of implementing the project entirely within PRONADEL was discarded as limiting opportunities for replication at national and regional level, and for affecting the policy and legal environment; the project will therefore include a Coordinator initially based in PRONADEL, who will after the first two years move either to the umbrella entity DINADERS or to the SAG, depending on the conclusions of the first project review at the end of year 2. Conversely, the option of greater autonomy from PRONADEL at pilot area level was discarded, despite concerns regarding negative perceptions in some communities of the activities of PRONADEL to date, in order to promote the project's objective of demonstrating linkages between conservation and rural development activities.

- Sector base. Although GEF Focal Point in Honduras is located within the Ministry of Environment and Natural Resources (SERNA), the option of basing the Project Implementation Unit (PIU) in SERNA was discarded given that the central concept of the project is achieving global benefits by influencing rural development activities, which are responsibility of the SAG. The importance of a cross-sector approach (central to OP12) led to the decision that, while the PIU would be located in the SAG, the project would be co-executed by SAG and SERNA, the latter ministry being represented on the steering committee and having significant inputs into the project's activities in the area of environmental governance.

- Project size. The overall budget of the project is sensitive principally to its duration, the personnel requirements for its implementation and the number of training events and workshops included. Reductions in duration from 6 to 5 and 4 years would result in reductions in project budget of around 6.5 and 13% respectively. However the 6 year duration proposed offers significant advantages as it provides for adequate overlap (4-5 years) with the partner project PRONADEL to allow significant results to be achieved in the field and lessons to be generated regarding the GEF project-PRONADEL interaction, and an adequate period following the end of PRONADEL's field activities (1-2 years) to develop and implement an exit strategy which will guarantee long term sustainability of the achievements of the first period, and the systematization and dissemination of lessons learnt. Following a workshop with members of PRONADEL and DINADERS on the project's implementation arrangements, staff numbers have been reduced from an earlier proposal to the minimum required to ensure effective operation at diverse levels (field, project and programme); it is significant that, in order to ensure significant impact, the project's strategies go beyond simply providing environmental guidance to PRONADEL. The number of training events and workshops proposed is a function of the diversity of local and institutional stakeholders with which it is necessary for the project to relate, which in turn is due to the complexity of the two pilot areas and the issues affecting them.

4. INSTITUTIONAL COORDINATION AND SUPPORT

4 a Core Commitments and Linkages

4 a i. Country/regional/global/sector programs.

222. The project is highly compatible with the areas of action of the UNDP country office in Honduras. Although the main contact point of the project within the country office will be the Energy and Environment Cluster, its thematic focus means that there will be close links with the Rural Development Cluster, which administers IFAD funding of the rural development project PRONADEL, with which this project will work closely at pilot area and project levels.

223. The three thematic areas of the Environment Cluster are i) Management and Sustainable Use of Natural Resources; ii) Climate Change and iii) Environmental Vulnerability. This project relates principally to the first of these themes, but is of relevance to the second (Climate Change) through its activities to protect carbon reserves and promote small-scale "clean" energy systems; and the third through the promotion of sound watershed management, whose benefits include the stabilization of river flows, the reduction of landslip risks and the promotion of the resilience of agricultural production to rainfall failures.

224. The Project is also of relevance to a number of the thematic areas of the Rural Development Cluster, namely: i) Rural Tourism – the project will promote ecotourism in the pilot areas as a means of promoting the value to local people of natural resources; ii) Rural Financial Services – the project will work closely with the PRONADEL project which is promoting sustainable local finance mechanisms for resource management activities; and iii) Sustainable Irrigated Agriculture – the project will assist PRONADEL in managing the environmental aspects of irrigation.

4 a ii. GEF activities with potential influence on the proposed project (design and implementation).

225. GEF funded projects in Honduras related to this project are the following:

i) Establishment of a Programme for the Consolidation of the Mesoamerican Biological Corridor (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama). The project will contribute to the conservation of a key link in the Mesoamerican Biological Corridor, the Río Plátano Biosphere Reserve and as such will complement the existing MBC project. It will at the same time generate lessons, from both pilot areas, regarding the integration of rural development and conservation, which will be applicable to other protected areas, buffer zones and corridors within the MBC; the MBC will therefore provide the framework for regional level replication.

ii) The WB-GEF Honduras Biodiversity Project (PROBAP). PROBAP will be an important channel for the replication of lessons learnt at national (Honduras) level, for example in the Caratasca Lagoon area of the eastern Mosquitia, which was originally proposed as one of the pilot areas of this project.

PROBAP does not overlap geographically with this project as, although its focus is on north coast protected areas, it does not cover the Río Plátano Biosphere Reserve which is included in this project's Sico-Paulaya Pilot Area.

iii) Small Grants Program. The SGP will represent a complementary source of funding for small-scale projects, with economic and environmental benefits, identified by local communities; its current area of focus overlaps with the Sico-Paulaya pilot area. There will be no duplication between the SGP and the current project as, while this project will assist local communities in the identification of initiatives requiring grant funding (from sources which may include both PRONADEL and the SGP), the SGP operates entirely in response to local demand and this project will fund gaps in the form of projects which may be externally identified.

4b Consultation, Coordination and Collaboration between IAs, and IAs and EAs, if appropriate.

4 b i. Describe how the proposed project relates to activities of other IAs (and relevant EAs) in the country/region. (See below)

226. The International Fund for Agricultural Development (IFAD) through financing for the National Programme for Local Development (PRONADEL) has been collaborating with UNDP-GEF in the development of this project from its conceptual stage, through project preparation and formulation. The Interamerican Development Bank (IDB) funded project MARENA (Management of Natural Resources in Priority Watersheds) will work in strategically important watersheds in Honduras, particularly those whose management affects the viability of major reservoirs. There will be no geographical overlap with the MARENA project; rather, MARENA will be a recipient of lessons learnt from this project, through the dissemination and replication mechanisms to be established within the framework of DINADERS (to which MARENA is also affiliated).

227. Other existing or proposed IDB projects in the region which will be recipients of lessons learnt from the project are listed below:

Country	Title	Status/code
El Salvador	Trinational Sustainable Development in the Upper Lempa River Basin	1330/OC-ES
Guatemala	Saneamiento y Manejo Sustentable de la Cuenca del Río Amatitlán	Proposed
	Natural Resource Management in Upper Watersheds	1398/OC-GU
	Trinational Sustainable Development in the Upper Lempa River Basin	1331/OC-GU
	Sustainable Development Program for Petén	973/OC-GU 974/OC-GU
Honduras	Bay Islands Environmental Management Program II	1113/SF-HO
	Trinational Sustainable Development in the Upper Lempa River Basin	1082/SF-HO

4 b ii. **Describe planned/agreed co-ordination, collaboration between IAs in project implementation.**

Collaboration with IAs will be in the form of the dissemination of lessons learnt from the project, as described above.

5. Response to Reviews

a) Council at pipeline entry:
None received

b) Convention Secretariat

(c) GEF Secretariat:
None received

d) Other IAs and relevant EAs:
None received

e) STAP
See Annex C

f) Review by expert from STAP Roster
See Annex C

List of Annexes:

Annex A: **Logical Framework Matrix**
Annex B: **Endorsement Letter**
Annex Ci: **STAP review**
Annex Cii: **Response to STAP review**
Annex D: **Public Participation Strategy**
Annex E: **Response to GEFSEC and Council comments at work program inclusion.**
[Will be added for the purposes of CEO endorsement]

OPTIONAL ANNEXES
Annex F: **Co-funding Letters**
Annex G: **Pilot area selection process**
Annex H: **Characteristics and global environmental values of Pilot Areas**
Annex I i **Sico-Paulaya Pilot Area: summary table of threats to global benefits and their causes**
Annex I ii **Texíguat Pilot Area: summary table of threats to global benefits and their causes**
Annex J i **Sico-Paulaya Pilot Area: activities to address threats**
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Annex K: **Summary of interrelations between strategies**
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Annex P: **Plan for the dissemination of lessons learnt**
Annex Q: **Implementation arrangements**
Annex R: **Baseline activities and funding**
Annex S: **Incremental cost estimation**
Annex T: **Bibliographic references**
Annex U i: **Map annex: Sico-Paulaya Pilot Area**
Annex U ii: **Map annex: Texíguat Pilot Area**

Annex A: Logical Framework (Funding sources per output provided in the IC Annex)

Overall Project Components and Outputs	Targets	Monitoring mechanisms	Key assumptions
Development Objective : Multiple global environmental benefits are achieved through mainstreaming of Integrated Ecosystem Management (IEM) principles into productive rural development projects in Honduras and Central America.			
Objective: Multiple global environmental benefits have been achieved in the entire area of influence of PRONADEL by the integration of IEM principles into this development project´s operational procedures, following the successful demonstration, validation and dissemination of experiences of this approach attained in two pilot areas	***By Project end,*** 1. 14,000 km^2 of natural ecosystems in the productive landscape are under improved conservation as a result of modified rural development programmes within Honduras. 2. 23,000 km^2 land have increased protection from degradation in Honduras. 3. Key national government institutions involved in rural development have increased capacities in IEM and are applying them in at least 8 rural development projects. 4. The staff of 10 major rural development projects in Central America have access to lessons learnt from the project on integrated ecosystem and watershed management.	1. M&E documents of rural development projects targeted 2. M&E documents of rural development projects targeted 3. Capacity assessments of targeted staff in IEM and field visits to rural development projects 4. Virtual questionnaires and interviews with targeted staff in development projects	The commitment of funding agencies and regional governments to global environmental values remains at present levels The receptiveness of rural development project and funding agency staff stays at present levels
Component 1: Considerations to achieve multiple global environmental benefits using IEM principles have been successfully mainstreamed into PRONADEL´s national procedures and operations and are effectively producing the expected results.	1. From the end of Year 2, 90% of productive initiatives supported by PRONADEL are implemented without significant negative impacts 2. By the end of Year 4, all of the productive initiatives supported by PRONADEL in 60% of its target communities are carried out within a context of natural resource management planning.	1. Field visits and interviews and questionnaires of a representative sample of local stakeholders throughout the area of influence of PRONADEL 2. Field visits to a representative sample of productive projects throughout the area of influence of PRONADEL	The commitment by IFAD and GoH to the incorporation of environmental considerations remains at present levels
Output 1.1: Environmental considerations, including mechanisms for	1.From the end of Year 1, environmental review guidelines and monitoring mechanisms 100% developed. 2.From the end of Year 2 on, 90% of PRONADEL technical staff have	1.Guidelines & monitoring plan 2. Attendance lists at training courses and seminars and periodic	The commitment of PRONADEL staff to environmental considerations remains at

Overall Project Components and Outputs	Targets	Monitoring mechanisms	Key assumptions
environmental evaluation, monitoring and mitigation, mainstreamed into PRONADEL financed rural development operations, and fined tuned over time with lessons learnt from pilot studies.	increased awareness and capacity to apply environmental guidelines in their operations. 3. Reports documenting pilot area experiences available to and consulted by 90% of PRONADEL technical staff in each of Years 1-4 4 From the end of Year 2 on, 90% of productive initiatives supported by PRONADEL are subject to environmental evaluation and monitoring and are implemented without significant negative impacts on global environmental values 5. By the end of year 3, 90% of PRONADEL budget is in conformance with orientation provided by the project.	capacity assessments of PRONADEL staff 3. Reports and interviews with PRONADEL staff 4. Minutes of CLAP meetings, field evaluations to a sample of productive initiatives, and community members' perceptions of environmental impacts of projects supported by PRONADEL 5. PRONADEL accounts and evaluations of PRONADEL environmental projects and interviews with community members.	present levels Political support for PRONADEL staff to incorporate environmental considerations in operations continues to be strong. PRONADEL Staff tables remain stability throughout the project
Component 2: The approach to integrate IEM principles in PRONADEL's operations has been successfully demonstrated and validated to yield multiple global environmental benefits in two pilot areas	1. The total reduction in forest cover in the pilot area SPPA between years 1 and 3 does not exceed 750 ha, and between Years 4 and 6 this does not exceed 450 ha (representing two consecutive reductions of 40% in the rate of forest cover loss compared to the 1995-2001) 2. By Project end 50% of the area of the Texíguat Pilot Area (885 km^2) is under management which reduces land degradation. 3. *By the end of year 3,* the use of fossil fuels to generate electricity in one of the pilot areas (SPPA) has decreased by 50%. reducing the threat to global environmental values.	1. Satellite images in Sico-Paulaya Pilot Area 2. Field visits and surveys of extent of alternative land use practices being adopted by farmers. 3. Household surveys, inspection of electricity generator	The present favourable social, policy and legal environment in the two pilot areas remains stable
Output 2.1*:* Application of cross-sectoral and participatory planning for IEWM in the two pilot areas.	1. By end of year 1, detailed participatory context analyses or appraisals of environmental, socio-economic conditions? (see Annex O) have been undertaken in each pilot area to orient/guide the development of resource management plans. 2. By the end of year 3 , at least 2 thematic resource management plans (related to e.g. hydrological and forest resources, see Annex 0), have been developed with the participation of local	1. Appraisal documents and interviews and records of workshops with pilot area stakeholders 2. Minutes of multi-stakeholder meetings and plan documents	Stakeholder sectors willingness to participate in joint planning processes remains stable

Overall Project Components and Outputs	Targets	Monitoring mechanisms	Key assumptions
	stakeholders, and are being taken into account in resource management decisions in each pilot area.		
Output 2.2*:* Inclusion of considerations of IEM in the policy formulation and lobbying processes of key national institutions, with mandates in resource management and rural development, has led to modifications in legislation, policies, regulations and economic incentives which promote global environmental benefits in the pilot areas.	1. By the end of year two, information packages on critical legislation, policies and incentives requiring review is available for lobbying processes 2. By the end of year 4, at least one policy monitoring and development entity is effective in each pilot area. 3. By the end of year 3, key national institutions, with mandates in resource management and rural development include considerations of IEWM and global environmental values in their policy formulation and lobbying processes 4. By the end of 5, at least 2 major legislation or policy instruments have been significantly modified in favour of IEM and global environmental values	1.Information packages and documentation of policy reviews 2. Interviews with regional stakeholders regarding the application of new/revised polices. 3. Interviews with members of key national institutions 4. Legislation and policy reviews	The receptiveness and commitment of members of SAG and SERNA to environmental considerations remains high The commitment at the political level to decentralization of policy formulation processes continues
Output 2.3*:* Demonstration projects in alternative productive and land-use practices established in the pilot areas providing critical information for the application of IEM.	1. From the end of year 2 on, 1 micro-hydroelectric system is supplying energy to Sico and between years 3 and 6, forest cover in the catchment supplying the system has not been reduced by more than 2%[6]. 2. By the end of year 3, 1 farm demonstrating sustainable agriculture and livestock practices is operating in Sico-Paulaya and 2 in Texíguat. 3. By the end of the project, 50% of the farmers in the pilot areas have visited at least one demonstration farm, and of that 50% at least half are applying practices learnt through these visits. 4. From the end of year 2 on, 1 multi-use environmental centre fully operational and disseminating alternative productive and land-use practices 5. From the end of year 2 on, 1 information center on natural resources	1. Field inspections and interviews with local stakeholders and satellite imagery 2. Field inspections 3.Visitors' registers and interviews with visitors, including visits to the farms of farmers who have visited the demonstration farms 4. Field inspections and interviews with local stakeholders 5. Field inspections and interviews with users 6. Field inspections and project documents to evaluate effects on global environmental values, and	Farmers continue to show interest in visiting demonstration farms and applying new techniques Information made available is actively used by key stakeholders

[6] The overall forest cover loss in the part of the RPBR buffer zone which overlaps with the pilot areas, between 1995 and 2001, was 10.3%.

Overall Project Components and Outputs	Targets	Monitoring mechanisms	Key assumptions
	and biodiversity in the two pilot areas is being actively used and helping projects, NGOs and institutions to promote IEM 6. By the end of Year 4, 4 other environmental investment projects are under implementation and contributing to the conservation of global environmental values in each pilot area.	interviews with local stakeholders	
Output 2.4*:* Key institutions in pilot areas have increased awareness in, and capacity for applying and enforcing IEM.	1. By end of Year 2 on, members of at least 8 institutional counterpart entities in each pilot area have increased awareness and information access. 2. From the end of Year 2 on, 80% of infringements of environmental law denounced by local communities are successfully prosecuted. 3 By the end of the project, members of 90% of relevant pilot area institutions have strengthened capacities for applying environmental service payment schemes.	1. Interviews and capacity assessments of staff of counterpart entities and attendance lists at training courses and workshops 2. Records of enforcement authorities and interviews with local stakeholders 3. Interviews with members of pilot area institutions and projects, including pilot area stakeholders.	The commitment by central government to fund recurrent costs of judicial authorities continues
Output 2.5: Local stakeholders in the pilot areas have increased awareness in, and capacity for applying IEM and alternative land use practices .	1. By the end of Year 3, 600 pilot area stakeholders have received training[7] have increased organizational capacity for combating threats to the natural resources on which they depend 2. By the end of Year 2, 100% of the CLAPs in the pilot areas have capacity to apply concepts of environmental evaluation and mitigation in the approval of proposals for productive projects 3. By the end of Year 3, 100 recipients of training on ecotourism[8] have increased awareness and capacity to participate in ecotourism ventures. 4. By end of Year 4, 1 eco-tourism venture is operating, generating revenues for local stakeholders and motivating the conservation of natural resources. 5. By the end of Year 4, 90% of forestry cooperatives in the pilot areas have strengthened technical and marketing capacity for sustainable forest	1 Attendance lists at workshops and training events and interviews with sample of participants 2. Minutes of CLAP meetings and interviews with CLAP members 3.Interviews with sample of participants 4. Number of registered ecotourism ventures, including statements of earnings and revenue generating capacity 5. Interviews with cooperative members and visits to cooperative activities and interviews with AFE-COHDEFOR staff, visits to cooperatives, and documents of	New energy sources are well accepted by local inhabitants Farmers continue to show interest in alternative productive practices Land use alternatives produce the anticipated local benefits

[7] 30 training workshops will be held for 30 participants each. The total population of the Texíguat Pilot area is around 8,000, in around 2,000 households and in Sico Paulaya Pilot area around 5,000 individuals in 850 households.

[8] 5 workshops will be carried out for 30 people each

Overall Project Components and Outputs	Targets	Monitoring mechanisms	Key assumptions
	management 6. From the end of Year 3 , 4 community-based productive projects[9] are in successful operation based on the sustainable utilization of biodiversity 7. By the end of the project 600 farmers in TPA have increased awareness of mulch and natural regeneration based farming systems and at least 50% of these[10] are applying mulch and natural regeneration based farming systems. 8. By the end of the project 180 farmers trained in IPM and 90 are applying IPM practices	marketing strategies 6.Field visits to projects and review of documentation and marketing strategies and statements of earnings 7. Register of training activities and field visits to participant's farms 8. Interviews with a sample of participants	
Component 3: The experiences learned at pilot area and project level have been captured and documented and have been successfully disseminated to a wide audience of funding agencies involved in development and conservation activities, both in Honduras and throughout Central America	1. By the end of the project staff of 30 projects and institutions throughout Honduras and Central America have access to systematized information on the lessons learnt through the project	1. Virtual questionnaires and interviews	Funding agencies incorporate the information acquired in their operations
Output 3.1: Lessons learnt at pilot area and project level recorded and disseminated to stakeholders in conservation and rural development throughout Central America	1. Document recording best practices in format to user groups is produced and effectively disseminated in each of years 1-6. 2. By the end of Year 6, members of 30 institutions and projects in the region have participated in forums and exchanges on project related concepts	1.Document of lessons learned 2. Virtual questionnaires, and visits to regional projects	
Output 3.2: Key government institutions (SAG (UPEG and DINADERS) and SERNA) have increased awareness and capacity for applying of integrated approaches to conservation and rural development.	1 From the end of Year 3 , key government institutions apply integrated approaches to ecosystem and natural resource management.	1. Visits to rural development projects and project documentation	Commitment on the part of SAG and SERNA continues to be high
Activities for Output 1.1 1.1.1 Provision of technical advice and training to PRONADEL 1.1.2 Monitoring, evaluation and systematization of pilot area results			

[9] Funded by PRONADEL or other source
[10] The project will fund the participation of 600 farmers in participatory learning activities

Overall Project Components and Outputs	Targets	Monitoring mechanisms	Key assumptions
1.1.3 Dissemination throughout PRONADEL of lessons learnt in the pilot areas 1.1.4 Support, monitoring and adjustment of the environmental evaluation and monitoring mechanisms. 1.1.5. Implement productive projects through PRONADEL incorporating IEM and lessons learnt through the pilot area experiences			
Activities for Output 2.1 **2.1.1 Facilitation and articulation of watershed and natural resource management planning processes**			
Activities for Output 2.2 2.2.1 Capacity strengthening and information support for lobbying by key national institutions. 2.2.2 Promotion of a regional level approach to policy formulation and application			
Activities for Output 2.3: 2.3.1 Establishment of a micro-hydroelectric system in the Sico-Paulaya Pilot Area. 2.3.2 Establishment and support of demonstration farms in both pilot areas 2.3.3 E1 Establishment of multi-use environmental centre in the Sico-Paulaya Pilot Area. 2.3.4 Establishment of an information resource centre on natural resources and biodiversity in the inter-institutional offices in Sico and in municipal offices in the Texíguat catchment. 2..3.5 Support to other environmental investment projects identified during the life of the project.			
Activities for Output 2.4: 2.4.1 Awareness raising, training and information support to institutional counterparts regarding the biophysical and social dynamics of the pilot areas and alternatives of technical solutions 2.4.2 Provision of training and logistical support to key institutions in the judicial system. 2.4.3 Awareness raising and information supply to institutions and local populations regarding environmental services. 2.4.4 Systematization of existing research results and support of collaborative research			
Activities for Output 2.5: 2.5.1 Provision of organizational training and support to members of local communities. 2.5.2 Awareness and capacity building among local organizations. 2.5.3 Provision of training and marketing support for ecotourism to local stakeholders. 2.5.4 Provision of technical and marketing support to forestry cooperatives in the Sico-Paulaya Pilot Area 2.5.5 Provision of technical, organizational and marketing assistance for the sustainable utilization of biodiversity in support of rural livelihoods. 2.5.6 Promotion and facilitation of farmer-farmer interchanges and participatory action research on mulch and natural regeneration based farming systems in the Texíguat Pilot Area 2.5.7 Promotion of Integrated Pest Management in the upper, vegetable growing part of the Texíguat Pilot Area			
Activities for Output 3.1: 3.1.1 Analysis, systematization and dissemination of lessons learnt regarding the model of integration of conservation and rural development considerations at project level 3.1.2 Facilitation and support of inter-institutional forums and exchanges.			
Activities for Output 3.2*:* 3.2.1 Provision of advice, technical assistance and information support on integrated approaches to ecosystem and natural resource management to SAG (UPEG and DINADERS) and SERNA			

Annex B: Endorsement Letter (included in separate file)

Annex C i: STAP REVIEW

Name of Project: **Promoting Integrated Ecosystem and Natural Resource Management in Honduras**

Reviewer: Enrique H. Bucher
Date: February 14, 2003

Proposal's global priority and relevance in the area of the biodiversity protection

This proposal deals with a region of significant biodiversity and ecological value. The area is under threat because of rapidly growing problems throughout the whole Central America region. Therefore, the global priority of the area is high. This proposal is therefore in accordance with GEF objectives.

Scientific and technical soundness

The proposal aims at promoting the incorporation of integrated ecosystem and watershed management in rural development projects in Honduras, mostly through the dissemination of lessons learnt from the project's intervention in rural development and implementation of pilot field projects. The problem addressed is relevant not only for Honduras, but also for the whole Central American region. From the conservation point of view, management of such complex ecosystems as montane tropical forests requires an integrated political and administrative approach at the regional level, which integrates preservation and development at least at the whole hydrological basin scale.

The project's intervention will be based on the promotion of improved procedures for monitoring and evaluation of community-based initiatives proposed for financial support, as well as influencing government agencies to adopt environmentally sustainable criteria and policies. Moreover, in two pilot areas (the Sico-Paulaya valley and the Texíguat River watershed) the project will facilitate integrated ecosystem and watershed management actions, providing training and strengthening local stakeholders and institutions.

The proposal is based on an excellent and detailed analysis of the threats that affect conservation and sustainable use of the local biodiversity and water resources. Key factors include a) lack of conditions of governance in the area (particularly weakness of central government institutions responsible for environmental planning and development); b) non-sustainable forest, soil, and wildlife use; c) lack of productive alternative for campesinos and d) pervasive lack of effective law enforcement.

The project's goals and objectives are well defined. The methodological approach is adequate in design and comprehensive in scope. From the scientific and technical perspective, the project is supported by sound knowledge of the local situation as well as long-term experience on land-use and resource-use alternatives. The project has significant institutional support.

Adequacy and cost-effectiveness of the project design in achieving biodiversity protection

According with the information presented, the proposed actions have good possibilities of achieving increased biodiversity protection in Honduras through a) influencing the degree of environmental awareness and consideration in government agencies and b) support for specific demonstration sites and initiatives from the local communities. The proposed budget appears reasonable and matched by funds from local sources.

Feasibility of implementation and operation and maintenance

According with the strategy adopted in the proposal, implementation, operation and maintenance in the long term appear highly feasible. Most of the activities proposed are based in meetings, training activities, and specific research and development actions than can be implemented with the available human resources and infrastructure. A critical question is whether changes induced by the project will be permanently adopted by Honduras's government structure and the local communities. It appears however that all possible actions aimed at ensuring continuity and sustainability are considered in this project.

Comments

In my opinion, this proposal could be improved by adding additional details and clarification about the following aspects:

1) **The connection between the key problems identified in the diagnostic analysis and the proposed goals and strategies should be made more clear and consistent, particularly in the following aspects::**
    a. **How the selected approach will contribute to correct the observed lack of law enforcement, coupled with absence of environment-related government agencies in the area?**
    b. **Given that lack of sustainable production systems (both in the ecological and economical sense) is a critical limiting factor, it appears that a substantial effort in research and development would be needed to develop more environment-friendly practices in cattle ranching, forest exploitation, ecotourism, *Leucaena* production, etc. Will the proposed activities (essentially based on hiring consultants) be sufficient to achieve these goals? Should participation of local technical and scientific institutions (universities, government and private research centers, etc.) be considered, stimulated and even supported?. Take into consideration that research and development actions are by nature long-term and therefore beyond the capacity of individual consultants. Moreover, involvement of local research centers may help to correct the observed lack of appropriate alternatives for the dry forest agroecosystem that constrain farmers' opportunities and alternatives.**

2) **Considering the need to correct the institutional fragmentation and isolation detected in the initial diagnosis, it would be pertinent to show how this proposal effectively connects with a) the National Biodiversity Strategy and Action Plan and b) UPEG (Planning, Evaluation and Management Unit).**
3) **Taking into consideration the importance of improving local institutions and developing human resources, it would appear that local universities and DAPVS (Departamento de Areas Protegidas y Vida Silvestre) should deserve participation in dealing with the technical aspects of biodiversity research, monitoring and management.**

Summary

The proposal is relevant to GEF objectives, dealing with an important conservation problem. It has significant potential for replication throughout tropical Latin América. Goals and strategy are well balanced towards the general goal of promoting a sustainable approach to resource exploitation in Honduras.

Chances of sustainability are high. Considering that the comments listed in the previous sections will be considered and addressed at the final Project Document stage, I fully support this proposal.

Enrique H. Bucher

Annex C ii: Responses to STAP Review

Name of Project: **Promoting Integrated Ecosystem and Natural Resource Management in Honduras**

Reviewer: Enrique H. Bucher
Date: February 14, 2003

Proposal's global priority and relevance in the area of the biodiversity protection

This proposal deals with a region of significant biodiversity and ecological value. The area is under threat because of rapidly growing problems throughout the whole Central America region. Therefore, the global priority of the area is high. This proposal is therefore in accordance with GEF objectives.

Scientific and technical soundness

The proposal aims at promoting the incorporation of integrated ecosystem and watershed management in rural development projects in Honduras, mostly through the dissemination of lessons learnt from the project's intervention in rural development and implementation of pilot field projects. The problem addressed is relevant not only for Honduras, but also for the whole Central American region. From the conservation point of view, management of such complex ecosystems as montane tropical forests requires an integrated political and administrative approach at the regional level, which integrates preservation and development at least at the whole hydrological basin scale.

The project's intervention will be based on the promotion of improved procedures for monitoring and evaluation of community-based initiatives proposed for financial support, as well as influencing government agencies to adopt environmentally sustainable criteria and policies. Moreover, in two pilot areas (the Sico-Paulaya valley and the Texíguat River watershed) the project will facilitate integrated ecosystem and watershed management actions, providing training and strengthening local stakeholders and institutions.

The proposal is based on an excellent and detailed analysis of the threats that affect conservation and sustainable use of the local biodiversity and water resources. Key factors include a) lack of conditions of governance in the area (particularly weakness of central government institutions responsible for environmental planning and development); b) non-sustainable forest, soil, and wildlife use; c) lack of productive alternative for campesinos and d) pervasive lack of effective law enforcement.

The project's goals and objectives are well defined. The methodological approach is adequate in design and comprehensive in scope. From the scientific and technical perspective, the project is supported by sound knowledge of the local situation as well as long-term experience on land-use and resource-use alternatives. The project has significant institutional support.

Adequacy and cost-effectiveness of the project design in achieving biodiversity protection

According with the information presented, the proposed actions have good possibilities of achieving increased biodiversity protection in Honduras through a) influencing the degree of environmental awareness and consideration in government agencies and b) support for specific demonstration sites and initiatives from the local communities. The proposed budget appears reasonable and matched by funds from local sources.

Feasibility of implementation and operation and maintenance

According with the strategy adopted in the proposal, implementation, operation and maintenance in the long term appear highly feasible. Most of the activities proposed are based in meetings, training activities, and specific research and development actions than can be implemented with the available human resources and infrastructure. A critical question is whether changes induced by the project will be permanently adopted by Honduras's government structure and the local communities. It appears however that all possible actions aimed at ensuring continuity and sustainability are considered in this project.

Comments

In my opinion, this proposal could be improved by adding additional details and clarification about the following aspects:

> **1) The connection between the key problems identified in the diagnostic analysis and the proposed goals and strategies should be made more clear and consistent, particularly in the following aspects::**

[***Response****:* In order to make clearer the connection between key problems and proposed goals and strategies, addition explanatory text has been included in section 2 b iii for each of the Outputs under Objective 2, relating each pilot area activity to identified threats to global environmental values. The flow diagram presented as Figure 1 explains in graphic form the ways in which the different outputs will contribute to reducing threats to global environmental values; the contributions of each Output in this regard are explained further in paragraph 128:

"The sustainable reduction of threats to global environmental values depends upon future activities carried out in the pilot areas being carried out in accordance with plans which specify, on the basis of the priorities of local stakeholders and biological considerations, which activities are permissible in which areas, and under what conditions (Output 2.1). For these plans to be applied effectively requires "teeth" in the form of locally-acceptable and effective regulation. This will be brought about by influencing policy decisions at national level regarding investment in institutional/regulatory presence in the areas (Output 2.2); by promoting improved conditions of governance in general, through supporting participatory planning processes (Output 2.1) and promoting the technical and organizational capacities of local stakeholders (Output 2.5); and by strengthening institutions involved in regulation, through logistical support, training and the promotion of their participation in multi-stakeholder dialogues (Output 2.4). For the reduction in threats to be sustainable, it is also necessary for local stakeholders to have access to

alternative activities which are compatible with, or further, the conservation of global environmental values (as defined by the planning instruments which will result as Output 2.1). Through the project's activities in technical strengthening of local stakeholders (Output 2.5), they will acquire the capacity to undertake such activities, with support from institutions which will also receive technical strengthening from the project with relation to such activities (Output 2.4). Some such activities, especially those that are new or innovative, require one-off "barrier removing" investment in order to make them viable and attractive to local stakeholders (Output 2.3)].

a. How the selected approach will contribute to correct the observed lack of law enforcement, coupled with absence of environment-related government agencies in the area?

[***Response****:* The flow diagram presented as Figure 1, in section 2 b iii, demonstrates how Outputs 2.2 and 2.4 will contribute to effective regulation and the effective provision of technical support. Specifically, the project will:

- Influence decision-makers at policy level, both directly and indirectly, to increase the presence in the area of regulatory and environment-related government agencies (Output 2.2, paragraph 135 and the third bullet point of paragraph 139).
- Provide logistical support in the form of a building and a vehicle to promote the presence of the Environmental Prosecutor (*Fiscalía del Ambiente*) in the Sico Paulaya Pilot Area (Activity 2.4.2, paragraph 158).
- Facilitate multi-stakeholder dialogue related to law enforcement, and provide awareness, training and information support (Activity 2.4.2, paragraph 158).
- Establish information resources for government institutions in both pilot areas which will provide them with improved conditions for effective working (Activity 2.3.4, paragraph 152).

Evidence of the effectiveness of discussions with decision-makers and policy formulators is the commitment that has been received during the PDF-B phase from the *Fiscalía del Ambiente* to locate a staff member in the Sico-Paulaya pilot area, following an initial meeting held with them to discuss needs].

b. Given that lack of sustainable production systems (both in the ecological and economical sense) is a critical limiting factor, it appears that a substantial effort in research and development would be needed to develop more environment-friendly practices in cattle ranching, forest exploitation, ecotourism, *Leucaena* production, etc. Will the proposed activities (essentially based on hiring consultants) be sufficient to achieve these goals? Should participation of local technical and scientific institutions (universities, government and private research centers, etc.) be considered, stimulated and even supported?. Take into consideration that research and development actions are by nature long-term and therefore beyond the capacity of individual consultants. Moreover, involvement of local research centers may help to correct the observed lack of appropriate alternatives for the dry forest agroecosystem that constrain farmers' opportunities and alternatives.

[***Response**:* Significant research has already been, or is being, carried out by institutions such as CATIE elsewhere in the region, for example into agricultural frontier strategies, sustainable forest management and agroforestry systems. Under Activity 2.4.4 (paragraph 160), the project will fund an initial consultancy study to review and systematize (in the form of an accessible document for use by project staff) research results to date into these themes, to analyze to what extent they satisfy the information requirements of this project and to devise a strategy for meeting additional research requirements. This will be an interesting "demonstrable" aspect of this project, that it bases its activities on good existing information. The additional research requirements identified will then be met through links with existing research institutions such as CATIE, the National University (UNAH), the National Forestry School (ESNACIFOR), the Panamerican Agricultural School and the University of Cornell. The inputs of these institutions will include long term advisory inputs by specialists on the academic staff, who will design and oversee long term research in the pilot areas (e.g. measurement of permanent sample plots) which will be supervised at a local level by GEF project staff; much of the research will also be carried out as part of graduate, masters and doctoral theses supervised by the academic staff of the research institutions in question. This research will be carried out as research projects to be funded jointly by the GEF project and other co-financing sources to be identified.

The project's emphasis on adaptive research, as the basis for its technical support activities, is stressed under Output 2.5: The project will base its provision of technical support on sound existing research results (see Activity 2.4.4); and the results of new research to be promoted by the project, including participatory adaptive research to be undertaken be stakeholder farmers, which will help to ensure the relevance of the technologies to be promoted to specific local socioeconomic and biophysical conditions.]

2) Considering the need to correct the institutional fragmentation and isolation detected in the initial diagnosis, it would be pertinent to show how this proposal effectively connects with a) the National Biodiversity Strategy and Action Plan and b) UPEG (Planning, Evaluation and Management Unit).

[***Response**:* As explained in Section 1 b ii (paragraph 6), the project will be highly compatible with the proposals contained in the SERNA's National Biodiversity Strategy and Action Plan, especially in relation to the following thematic areas proposed in that document:

- *Sustainable use of biological diversity:* Promotion of the conservation of biological diversity through the sustainable use of its components (see Activities 2.5.3, 2.5.4 and 2.5.5);
- *Research and training*: Promote and strengthen scientific research in order to generate knowledge and promote the conservation of the different components of biological diversity, based on national research priorities which permit the orientation and achievement of a sustainable use of natural resources (see e.g. Activities 2.4.1 and 2.4.4);
- *Environmental licensing*: Make effective processes, technologies and methodologies aimed at preventing and mitigating the adverse impacts of projects which may harm the environment (see Output 1.1)

- *Land use planning*: Making better use of national territory based on territorial and environmental land use planning which orients and regulates the sustainable management of natural resources and zones of high risk (see Output 2.1)
- *Information interchange*: Promote the development of integral programmes for the interchange of information which permits decision making based on the current reality, with relation to biological diversity, and which provides the means to facilitate access to data and information (see Activities 2.3.4 and 2.4.1).]

The project has been discussed with members of the UPEG of the SAG, with respect to its relation to the strategic axes being developed by "think tanks" currently working on policies in the agricultural sector. As explained in Section 1 b ii (paragraph 7) and confirmed in the support letter from the Minister of Agriculture presented in Annex B, the project will contribute in particular to the strategic axes related to:

- Sustainable management of natural resources.
- Productive transformation and diversification.
- Institutional strengthening
- Technology generation and training.]

3) Taking into consideration the importance of improving local institutions and developing human resources, it would appear that local universities and DAPVS (Departamento de Areas Protegidas y Vida Silvestre) should deserve participation in dealing with the technical aspects of biodiversity research, monitoring and management.

[*Response:* Under activity 2.4.4 (paragraph 160) it is proposed that "…A key requirement of such [research] agreements will be that the information which results from the research be deposited locally … and nationally (for example in DAPVS and DIBIO)". In the same paragraph specific mention has been made of national and regional universities, and DAPVS and DIBIO, as proposed partners in collaborative research. Their role in long term monitoring and follow-up is mentioned at the end of the same paragraph: "The project will promote the participation of national governmental institutions including DAPVS and DIBIO in providing long term follow up to research activities to be undertaken, in order to further sustainability and national ownership."].

Summary

The proposal is relevant to GEF objectives, dealing with an important conservation problem. It has significant potential for replication throughout tropical Latin América. Goals and strategy are well balanced towards the general goal of promoting a sustainable approach to resource exploitation in Honduras.

Chances of sustainability are high. Considering that the comments listed in the previous sections will be considered and addressed at the final Project Document stage, I fully support this proposal.

Enrique H. Bucher

Annex D: Strategies and Opportunities for Public and Institutional Participation

Given the focus of the project on demonstration, an integrated and cross-sector approach to management, participation, and achieving cost-efficiency through catalysis, it will have a large number of stakeholders, of different types, at different levels and under different forms of relationship. The principal forms of relationship foreseen between the project and its stakeholders are described below (summarized in the table at the end of this Annex). Additional information on local stakeholders is presented in Annex L.

1. PDF-B Phase

During the PDF-B phase priority has been given to obtaining inputs and approval for the project from a wide range of stakeholders, in order to ensure its relevance and acceptance during the implementation phase. Participation has taken the following forms:

Meetings with key stakeholders at national level. Extensive discussions have been held with the following stakeholders:

- The Vice-Minister of the Agriculture and Livestock Secretariat (SAG);
- The Minister and two Vice-Ministers of the Natural Resources and Environment Secretariat (SERNA)[11];
- The head of SERNA's Biodiversity Directorate;
- The head of SERNA's Environmental Management Directorate;
- The Executive Director of the SAG's National Directorate for Sustainable Rural Development (DINADERS), the executive arm of the National Programme for Sustainable Rural Development (PRONADERS) of which PRONADEL is a part;
- The Director General of AFE-COHDEFOR;
- The heads of the Watershed Management and Protected Areas and Wildlife Departments of AFE-COHDEFOR;
- Representatives of the Central American Bank for Economic Integration (CABEI), which currently co-finances PRONADEL alongside IFAD;
- The Executive Director and Sub-Directors of PRONADEL.

Evidence of the degree of participation at this level is the incorporation by the PDF-B team of the request by the Executive Director of DINADERS to modify the project's geographical focus, eliminating the Celaque pilot area to avoid excessive institutional duplication and including the Texíguat area in order to address land degradation issues. The subsequent decision also to eliminate the Laguna de Caratasca pilot area was the product of full consultation with PRONADEL, DINADERS, the Vice-Minister of SAG and the Director of the GEF-funded PROBAP project (who is also Director of the Protected Areas and Wildlife Department of AFE-COHDEFOR).

National level project presentation workshop. A formal presentation of the project was made to representatives of government, NGOs and donors in which the objectives and overall scope of the project were set out and discussed. The following institutions participated: SERNA, the National Council for Sustainable Development (CONADES),

[11] SERNA is the GEF focal point in Honduras; formal endorsement has been obtained from the Minister for the project.

PRONADEL, CABEI, the Honduran Joint Implementation Office (OICH), AFE-COHDEFOR's Forestry Development Project (PDF), the National Autonomous University of Honduras (UNAH), the GTZ/AFE-COHDEFOR Río Plátano Biosphere Reserve Project (PRBRP), the Mesoamerican Biological Corridor, MOPAWI, the Sustainable Development Network (RDS-HN), DINADERS/SAG, the Honduran Forestry Agenda (AFH), the Planning, Monitoring and Evaluation Unit of the SAG (UPEG/SAG), the Canadian-funded Natural Resources Management Project (PAGS/ACDI) and the National Association for the Promotion of Agroecology (ANAFAE).

Experience-sharing workshop. Care has been taken during the preparation phase to learn from experiences to date. To this end, at an early stage a national level workshop was held in which a range of projects were invited to present their experiences in thematic areas relevant to the project. The following projects and institutions participated: AFE-COHDEFOR and its projects MAFOR (Finland), Proyecto Celaque (GTZ) and PRBRP (GTZ); the SAG projects PRODERCO (IFAD), Proyecto Lempira Sur (Holland/FAO), Proyecto Guayape (IDB) and PRONADEL; the Puerto Cortés Municipality; CONADES; Pastoral Social Tocoa; the Fundación Comunitaria Puca; the Honduran Coffee Institute and SERNA.

Pilot area presentation and discussion meetings. Initial project presentation meetings were held in each of the pilot areas. In Sico-Paulaya, prior to the commencement of the main fieldwork activity by the PDF-B consultant team, the community participation specialist participated in, and presented the objectives of the project at, a meeting of the inter-institutional committee in Sico, which was attended by more than 100 local stakeholders in addition to the diverse institutions (NGOs and government) with interests in the area. Given the recentness of this meeting, it was decided to hold separate meetings during the fieldwork period with each of the stakeholder sectors, rather than attempting to convene another major meeting involving all sectors. Separate meetings were held with the following stakeholder sectors, in which the objectives of the project were presented and discussed, and initial discussions were held with the participants on the environmental issues of concern to them:

- Municipal governments of both municipalities involved (Juan Francisco Bulnes and Iriona);
- Representatives of campesino groups in the Jardines de la Sierra settlement area;
- Representatives of cattle ranchers, community members and institutions in Sico village;
- Forestry cooperative members in Paya village.

Stakeholder interviews and focal group meetings. Both the community participation and the policy and incentive specialists carried out extensive interviews and meetings with local stakeholders. The objective of the former, specifically the focal groups with key informants, was principally to characterize social and economic conditions and interactions with natural resources, to define interest groups and stratify the population according to well-being criteria as the basis for subsequent interventions. The results of these meetings are presented in the consultancy report of the community participation specialist. The latter aimed to discuss with the stakeholders their perceptions regarding

natural resources and the policy and institutional framework which relates to them. To this end, meetings were facilitated by the policy and incentives specialist with 7 stakeholder groups in Sico-Paulaya and 12 in Texíguat. Detailed minutes of these meetings are presented in the consultancy report of the policy and incentives specialist.

National and local validation workshops. At the end of the fieldwork phase, before drafting of the Project Brief proper, workshops were held at national and local levels to validate the findings of the studies of the pilot areas and the proposed objectives and activities of the project. In the national validation workshop, the following institutions and projects participated: SERNA, CONADES, MARENA (SAG/IDB), Small Donations Programme (UNDP/GEF), DINADERS, ANAFAE, MOPAWI, PRBRP, Social Forestry Programme (GTZ/AFE-COHDEFOR), The Nature Conservancy, PRONADEL, UPEG/SAG, the Pastoral Social Tocoa and the World Food Programme.

In addition, a workshop was held with PRONADEL staff to discuss operational arrangements for the implementation of the project, and particularly its relation with PRONADEL as the project's principal counterpart. The proposed organisational structure of the project was modified as a result of the suggestions of the participants, with the modified structure involving a greater degree of integration with the structure of PRONADEL than that originally proposed.

2. Implementation Phase

Cross-sector input into the strategic direction of the project will be achieved through a broadly-based Steering Committee, made up of Ministers and Vice-Ministers of the SAG (representing the agricultural and rural development sector) and the SERNA (representing the environmental and natural resources sector, and also the GEF focal point), the Executive Director of DINADERS (SAG), as operative head of the National Programme for Sustainable Rural Development, and the Director of Environmental Management of SERNA, responsible for strengthening of local government capacities in environmental management and regulation. Participation by national government will also be furthered by the appointment of the Vice-Minister of the SAG as National Project Director. While the executive functions of this position will be limited, this will facilitate two-way interchanges of information and advice at high political level.

The Project Coordinator will promote and participate in thematic committees or forums, which will serve both to ensure that the project's activities complement existing strategies and conform to existing guidelines, and as forums for discussion of technical issues among a wider audience. It will be proposed that each committee be chaired by the head of a government directorate: for example in the SERNA the Director of Environmental Management, the Director of Environmental Control and Evaluation and the Director of Biodiversity, on municipal environmental strengthening, environmental evaluation and monitoring and the management of biodiversity in productive systems, respectively; in the SAG, the Director of DINADERS and the Director of DICTA on the incorporation of environmental concerns into rural development initiatives and the development and transfer of agricultural and agroforestry technologies which are sensitive to global environmental values, respectively; the Chief Public Prosecutor or Environmental Prosecutor on environmental regulation; the Director of Land Use Planning on that theme; the Director of the Department of Protected Areas and Wildlife of AFE-

COHDEFOR on the management of protected areas; and the Director of the National Agrarian Institute on land titling and its relation to the conservation and natural resource management.

The project will promote the participation of all of the stakeholder sectors in the pilot areas, rather than limiting itself to those who satisfy the criteria for support by PRONADEL. Local participation will be promoted through the formation of a local level steering committee in each of the two pilot areas. In Texíguat Pilot Area, this will consist of members of the municipal authorities of each of the municipalities which overlap with the watershed. In Sico-Paulaya, it will consist of the already existing Committee for the Development of Sico-Paulaya (CODESPA), plus members of the municipal authorities of Iriona and Juan Francisco Bulnes. Representatives of communities in the pilot areas will also be invited to participate in the steering committee.

Project strategies and activities will also be guided by the outcomes of the participatory planning processes to be facilitated by the project (see Annex O), which, while not intended principally to have a steering role for the project, are likely to represent grassroots interests more faithfully than the local steering committees themselves. One of the outcomes of these planning processes will be the definition and refinement of zoning and criteria for productive activities, which will be taken into account by both PRONADEL and the GEF project in their operations.

Annex E: Response to GEFSEC and Council comments at work program inclusion. [Will be added for the purposes of CEO endorsement]

Annex F: Co-funding Letter [letters from co-financiers will be included for CEO endorsement]

Annex G: Pilot Area Selection Process

1. Alternatives considered

The pilot areas originally proposed in the PDF-B document were the following:

i) *The Caratasca Lagoon Watershed*, located in the east of the Mosquitia region, between the RPBR and the Nicaraguan frontier. The area consists of a series of rivers (the principal being the Ribra, the Warunta, the Mocorón and the Nakunta) and their watersheds, which drain into the lagoon. It was also proposed that the watershed of the Kruta river, which drains directly into the Atlantic rather than into the lagoon, be included.

ii) *A series of sub-watersheds around the Montaña de Celaque* in the western highlands of the country. The precise area to be included in the project was to be defined during the PDF-B phase.

iii) *The watershed of the Sico River*, at the westernmost extremity of the Mosquitia region, bordering on the RPBR.

Three changes are proposed to the geographical focus of the project:

i) Caratasca Lagoon watershed pilot area

On the basis of extensive discussions within the PDF-B team, consultations with institutional stakeholders and review of maps and other secondary information, it was proposed that the Caratasca Lagoon watershed be eliminated from the project, for the following reasons:

- The eastern Mosquitia region, and in particular the extensive lowland pine (*Pinus caribaea* var. *hondurensis*) savannahs which dominate the Caratasca lagoon drainage, is almost unique within Mesoamerica; similar conditions are only found across the border in the Nicaraguan Mosquitia. This would severely limit the replication potential of any lessons learnt during the project, a major disadvantage given the central importance to the project of its demonstration role.
- Impacts on global environmental values of the lagoon appear to arise principally from activities concentrated around and on the lagoon itself (such as fishing and pollution); the opportunities to demonstrate significant benefits from watershed-level management therefore appeared to be limited, taking into account the resources required to implement the project in this logistically-difficult region.
- The GEF-funded PROBAP project is already working in the Caratasca Lagoon area, providing an excellent opportunity for the project to have an indirect impact on global environmental values in the area, through the replication of lessons learnt, without a direct presence.

ii) Montaña de Celaque pilot area

The Montaña de Celaque pilot area was originally proposed to provide a geographical, biological and social contrast to the proposed Caratasca Lagoon and Sico pilot areas, which are both located in the humid north-east of the country. It is an area with high levels of endemism and interesting environmental service issues. Its

elimination from the project was proposed on the basis of a request from the Executive Director of DINADERS, based on the argument that the area is already subject to a high level of institutional investment and that the entry of the GEF project would lead to an unacceptable level of institutional overlap, contrary to the policy of PRONADERS. In particular, GTZ is currently funding the Celaque Project, which is promoting conservation in the core and buffer zone of the Montaña de Celaque National Park and surrounding areas with a strong watershed focus. GTZ is due, in 2003, to commence a major new project covering a large part of western Honduras, which will increase their investment in the area beyond existing levels. In addition, a number of major donor projects are operating in the watersheds surrounding the National Park, in particular the Dutch-funded FAO Lempira Sur project and the EU-funded Jicatuyo Project.

iii) Texíguat Pilot Area

At the same time as requesting the elimination of the Montaña de Celaque pilot area, DINADERS requested that the project should realize activities in one of the watersheds of the dry Pacific slope, characterized by recurrent problems of food insecurity due to a combination of climate unpredictability and poor watershed management. It was recognized that this offered an opportunity for the project to address the issue of land degradation in an area subject to extreme levels of this phenomenon. The justification for the selection of the Texíguat pilot area is further outlined in Section 2 b v and Annex H.

The above implies the reduction of the number of pilot areas from three to two: Sico-Paulaya and Texíguat.

2. System boundaries

a) Sico-Paulaya Pilot Area

After a long process of discussion the boundaries of the pilot area were defined as the geographical limits of the "*graben*" depression which contains the watershed of the Paulaya River and the lower part of the watershed of the Sico River (see maps in Annex V i). The northern/northwestern boundary is therefore the ridge top of the Sierra Río Tinto range, and its southern/southwestern boundary the ridge of the Montaña del Río Plátano, which also forms the boundary between the buffer and core zones of the RPBR. The northeastern limit is the sea, while the southwestern limit is the political division between the Departments of Colón (Iriona municipality) and Olancho (Dulce Nombre de Culmí municipality).

The following alternative options were considered:

i) Strict application of the watershed as the territorial management unit, requiring the inclusion of the middle and upper watersheds of the Sico River, including the extensive valley of San Estebán to the southwest.

ii) A modified application of the watershed concept, including the whole sub-watershed of the Paulaya river, in addition to the lower Sico watershed, as far as the watershed between it and the Wampú River (a tributary of the Patuca River).

iii) The use of the Los Mangos biological corridor as the southwestern dividing line, on the basis that this forms a natural topographical and social limit to the valley.

iv) Under the assumption that the project aims to complement protected area management activities by limiting itself to the surrounding areas, the use of the Paulaya River as the southeastern limit, implying the exclusion of the RPBMR buffer zone.

v) The inclusion of the whole area of the two municipalities, Iriona and Juan Francisco Bulnes, which coincide with the pilot area (plus a possible third, Dulce Nombre de Culmí).

vi) The area bordering the entire western and southwestern agricultural frontier of the RPBR.

The alternative finally settled on was identified on the basis of the following criteria:

i) For efficiency and effectiveness, the project's area of influence should correspond with the area in which processes are occurring which directly affect the global environmental values of the RPBR. This implies the exclusion of the the middle and upper watersheds of the Sico River (alternative i)) and also rules out a large part of the territory of the municipalities in question (alternative v)).

ii) In order to promote participation and therefore sustainability, the area should also at the same time be a unit with which local people easily identify. This argues for the use of the geographical valley of Sico-Paulaya, and again against the inclusion of the middle and upper watershed of the Sico.

iii) For management purposes, there should be relative ease of communication and movement between the different parts of the area; this argues against the inclusion of the topmost part of the Paulaya watershed, or to the southwestern agricultural frontier of the RPBR, which socially and physically are linked more to Olancho than to Sico (at present movement from Olancho to Sico requires several days journey by mule).

iv) Identification of gaps in institutional presence; staff of the GTZ-funded Río Plátano Biosphere Reserve Project indicated that their efforts are mostly focused on the southwestern frontier of the RPBMR and identified the Sico-Paulaya valley as the site of greatest institutional deficiency.

v) Relevance to existing administrative boundaries; although, for the reasons already given, entire municipal territories were not used to define the area, it was decided to use the Olancho/Colón frontier, rather than the Los Mangos corridor, as the southwestern limit, as this represents the limit of the jurisdiction of the municipal authorities as well as the AFE-COHDEFOR forest region.

b) Texíguat Pilot Area

Given the importance of hydrological issues in the dry south, more importance was given to the strict use of hydrological watershed boundaries to define the pilot area than in the SPPA. Responding to the concerns of SAG/DINADERS and seeking to address the GEF theme of land degradation, a manageably-sized watershed or sub-watershed was sought on the Pacific slopes of the country, which exhibited serious problems of environmental

stress due to drought and poor natural resource management. Three major watersheds drain from Honduras into the Gulf of Fonseca: the Goascorán, the Nacaome and the Choluteca. The Goascorán watershed was excluded as a significant proportion lies in El Salvador. At the request of SAG/DINADERS, the Nacaome River watershed, which does include areas of serious drought stress and resource degradation, was excluded as it is to be one of the target areas of the impending IDB-funded MARENA (Natural Resource Management in Priority Watersheds) project. The other candidate is the Choluteca River watershed. The inclusion of the entire watershed was considered but this option was rejected for manageability reasons, due to its size (7,570 km^2). A sub-watershed was therefore sought, the principal candidates being those of the Liure and Texíguat Rivers; the Texíguat watershed was chosen due to its manageable size (885 km^2), its inclusion of very dry areas (Zúniga, 1990) and the presence of interesting and diverse ecosystem remnants, identified from the National Ecosystems Map of Honduras (AFE-COHDEFOR, 2002).

Annex H: Characteristics and global environmental values of Pilot Areas

a) Sico-Paulaya Pilot Area

General Description

i) Location: The SPPA is located in the humid north of the country (Map 2, Annex V i), divided between the Departments of Gracias a Dios and Colón and bounded to the south by the Department of Olancho. It stretches from the boundary between the Departments of Colón and Olancho to the Atlantic coast, including all but the highest part of the Paulaya river watershed (a sub-watershed of the Sico river watershed), and additionally the lower reaches of the Sico watershed proper from its confluence with the Paulaya to the sea (see Section 2.3 for justification of the system boundaries). The total area of the pilot area is 1,667km^2, equivalent to 24% of the Sico river watershed. Of this, 1403km^2 (84%) is located in the Municipality of Iriona (Department of Colón) and 16% in the Municipality of Juan Francisco Bulnes (Department of Gracias a Dios) (Map 3). 796km^2 of the pilot area (48% of its extent) lies within the buffer zone of the RPBR.

ii)Physical conditions: The climate is very humid, with a total annual rainfall that ranges from 2,400mm in the north-west to 3,400mm on the coast (Map 6). Rain occurs throughout the year, but monthly levels are typically lower in April and May; this seasonality increases with increasing distance from the coast. The average annual temperature is 28^{o}C. There are marked differences in soil types between the valley floor and sides, the former being characterized by fertile but poorly drained alluvial soils, suitable for intensive agriculture, and the latter by shallow, acid red and yellow lithosols and latisols, typical of the humid tropics, capable of sustaining annual crops for only a limited period (Map 5).

iii) Vegetation: The area is still dominated by forest, which covers 59% of its area (980km^2). This is largely concentrated on the mountainous sides of the valley (the Sierra Río Tinto to the west and the Montaña del Río Plátano to the east, within the RPBR buffer zone). Large areas of the valley floor and delta have been cleared for agriculture and farming, and significant inroads have also been made along the side valleys which run into the RPBR buffer zone (compare Maps 11 and 12). The ecosystems present in the area (Map 9) are described in Section 2.6 and the conversion processes in Section 3.

Global environmental values

i) Biodiversity: The Sico-Paulaya Pilot Area lies at the western limit of the 5,250km^2 Río Plátano Man and the Biosphere Reserve (RPBR), established in 1980 and declared a World Heritage site by UNESCO in 1992. The Paulaya river, and the lower stretch of the Sico river into which it runs, bisect the Pilot Area and form the western boundary of the RPBR buffer zone for a distance of around 70km.

The RPBR forms the northernmost of a continuous chain of protected areas which also includes the Tawakha Asangni Biosfera Reserve[12], the Patuca National Park and the Bosawás Reserve in Nicaragua (Map 13). Together, this chain of reserves (including

[12] Despite the declaration by the Honduran Government of the Tawakha Asangni as a "Biosfera" Reserve, it does not form part of the UNESCO Man and the Biosphere Program.

buffer zones) covers an area of around 20,000km^2, making it the largest continuous area of humid forest in Central America. The Sico Paulaya valley lies at the intersection of three biological corridors within the overall framework of the Mesoamerican Biological Corridor: Corridor II (Soledad), including the Patuca and Tawakha Protected Areas and the RPBR; Corridor III, which delimits the valley on its north-western side and includes the Cerro de Agalta National Park, Montaña del Carbón and the Sierra Río Tinto (in process of protected area declaration); and Corridor IV (Caribbean) which covers much of the north coast of Honduras and includes diverse reserves such as Pico Bonito and Cuero y Salado.

The Pilot Area itself contains high ecosystem diversity, with 9 ecosystems of which 5 are forms of broadleaved forest, 2 are aquatic and 2 coastal (AFE-COHDEFOR, 2002) (Map 9):

i) Well drained evergreen forest. This ecosystem contains around 100 tree species per hectare; characteristic species include *Dialium guianense, Pouteria izabalensis, Calophyllum brasilense, Brosimum guianense, Pseudolmedia spuria* and *Hyeronima alchorneoides*.

ii) Moderately drained evergreen forest. Containing around 110 tree species per hectare (House, 1997), this forest has a dense understorey normally dominated by *Miconia* sp. and the palm *Astrocaryum mexicanum*. *Tetragastris panamensis* is typical of the sub-canopy, while the canopy is dominated by *Vochysia ferruginea, V. guatemalensis, Terminalia amazonica, Virola koschnyi, Symphonia globulifera Xylopia frutescens* and *Hirtella trianadra*.

iii) Evergreen swamp forest. While not as diverse as the two ecosystems already mentioned, this forest is important in protecting the neighbouring lagoons and estuaries. Characteristic species include *Carapa guianensis, Pterocarpus officinalis, Pachira aquatica, Grias cauliflora* and *Annona glabra.*

iv) Submontane evergreen forest. Structurally similar to ii) but with a less dense understorey and more epiphytes, this ecosystem is characterized by species such as *Clethra macrophylla, Styrax argentus, Billia hippocastaneum, Astronium graveolens, Hymenaea courbaril, Alchornea latfolia, C. brasilense, Hyeronima alchorneoides, Juglans olanchana* and *Coccoloba tuerkheimi.*

v) Lower montane evergreen forest. This forest is restricted to the highest limits of the watershed. It has rather lower species diversity than ecosystems i) and ii), being dominated by *Quercus* spp. Characteristic species include: *Quercus cortesii, Liquidambar styraciflua, Magnolia yoroconte, M. hondurensis, Laplacea grandis, Oreopanax xalapensis, O. lanchocephalus, Carpinus caroliniana* and *Pinus maximinoi.*

vi) Recent coastal land. In reality this is a combination of small ecosystems too small to map. Low dunes are dominated by semideciduous scrub and the spaces between them contain small areas of semi-deciduous swamp forest, with several types of swamp grassland.

vii) Beaches and dunes. The beaches in this area are mostly narrow; behind them is found a strip of semi-deciduous scrub dominated by *Coccoloba uvifera*.

viii) Brackish lagoon. In fact a truncated estuary almost closed off by a sand bar, this ecosystem contains mangroves and is an important habitat for the local fishing resource as well as occasionally for Manatees (*Trichechus manatus*)

ix) Atlantic slope rivers. The Sico and Paulaya rivers have a diversity of fresh and brackish water fish species, including the internationally rare and nationally threatened Cuyamel (*Joturus pichardi*) and Tepemachín (*Agonostomus monticola)*, which migrate seasonally from the upper reaches of the rivers to the estuary to lay eggs, the resulting larvae subsequently migrating back upstream.

The global importance of the pilot area lies not so much in its own ecosystem biodiversity, as in that of the RPBR with whose buffer zone it overlaps (Map 8) and to whose survival and integrity it is crucial. Little is known as yet about the vegetation of the mountainous majority of the RPBR (Froehlich and Schwerin 1983). The limited knowledge directly on the reserve's plants is reported in DIGERENARE and CATIE (1978), Froehlich and Schwerin (1983) and Glick and Betancourt (1983). The principal groups of ecosystems are the following (Herrera-MacBryde, undated):

a) The most extensive mangrove ecosystems fringe the large coastal lagoons of Brus (brackish, 120 km²) and Ibans (freshwater, 63 km²). Although some mangroves have been cut, the area still retains much of the original formation, with *Rhizophora mangle* characteristic.

b) Inland from the beach is a broad coastal savanna, which in wetter locales consists of sedge prairie with abundant *Rhynchospora* spp., *Paspalum pulchellum, Tonina fluviatilis* and *Utricularia subulata,* and where drier has more grasses, *Fimbristylis paradoxa* and *Declieuxia fruticosa*. Thickets of the palm *Acoelorraphe wrightii* are common. In drier areas is savanna dominated by *Pinus caribaea* var. *hondurensis* (20-25 m tall), which farther inland becomes open woodland with an oak understory *(Quercus oleoides*, to 12 m) and *Byrsonima crassifolia* (to 5 m) conspicuous, along with several Melastomataceae, *Calliandra houstoniana* and the tree fern *Alsophila myosuroides* (Clewell 1986). The savanna is burned frequently to maintain pasturage for grazing and to keep game in the open for hunting.

c) Towards the large rivers are thickets dominated by *Miconia, Isertia*, *Psychotria* and *Helicteres*. Along the Plátano River and other alluvial rivers through the savanna, broadleaf gallery forest occurs in various successional stages, to 30-40 m high. Variously conspicuous taxa include *Albizia carbonaria*, *Calophyllum brasiliense* var. *rekoi*, *Cecropia*, *Ficus*, *Inga*, *Luehea seemannii*, *Lonchocarpus*, *Ochroma lagopus*, *Pachira aquatica* and *Heliconia*. Small colluvial creeks are flanked by swamp forest with a dense canopy to 10 m dominated by Guttiferae *(Symphonia globulifera, Clusia* spp.) (Clewell 1986). On richer soils in moist forest that has been disturbed as a result of intermittent agriculture, the dominants are *Salix humboldtiana*, *Bambusa*, *Pithecellobium* and *Ceiba pentandra*.

d) The upland portion of the Plátano River watershed is covered by moist to wet forests which are poorly known. Common or characteristic within its lower elevations (among others) are *Apeiba membranacea, Bursera simaruba, Carapa guianensis, Casearia arborea, Cedrela odorata, Eugenia* sp., *Ficus insipida,*

Pourouma aspera, *Pseudolmedia oxyphyllaria*, *Pterocarpus* sp., *Quararibea* sp., *Sloanea* spp., *Swietenia macrophylla* and *Vochysia hondurensis*. With increasing altitude, sampled sites included the following plentiful or notable species: at 250 m – *Garcinia intermedia*, *Pouteria* sp. and *Schizolobium parahybum*; at 450 m – *Ardisia tigrina*, *Pharus cornutus* (rare), *Smilax subpubescens* and *Ternstroemia tepezapote*; at 600 m – *Lobelia* sp., *Satyria warscewiczii* and *Welfia* sp.

Trunks and branches support a rich assortment of epiphytes which are more abundant on the trees at higher elevations. Some locales have very dense successional stages resulting from disturbance by storms. Elfin forests occur on exposed ridges where the prevailing trade winds from the Caribbean have strong effect – for example at 700 m with *Clusia salvinii, Magnolia sororum, Lacistema aggregatum* and *Psychotria elata.*

The area contains two of the terrestrial ecosystems reported by Dinerstein *et al.* (1995) in Latin America and the Caribbean: Humid Central American Atlantic Forest and Mangroves. The former is considered vulnerable due to its rapid conversion to agriculture, bioregionally outstanding due to its biodiversity and of moderate regional conservation priority. The RPBR conserves around 10% of the extent of this ecosystem in the ecoregion (which stretches from the Guatemala/Honduras border along the whole Atlantic coast of the isthmus as far as Panama), while the Soledad Biological Corridor, of which the RPBR forms a part, contains around 30%; the only other protected area in the ecoregion in which it is significantly represented is the smaller Indio Maíz Reserve in Nicaragua, which is also highly threatened. Dinerstein *et al*. (1995) give the same conservation importance to all mangroves in Latin America; while containing few rare or endangered species, they are of high value as breeding sites for economically important species, are significant carbon sinks, trap sediment and stabilize coastal zones.

The Sico-Paulaya valley represents not only the westernmost limit of the RPBR, but also in biological terms of the Mosquitia region within which it falls; the tree species composition of its forests has more in common with the rainforests of the Mosquitia than of the Nombre de Dios range to the west, and for 16 of the 144 tree species found (11%) the valley represents the westernmost limit of their natural distribution. Examples include *Parkia pendula* and *Mimosa schomburgkii*, both of which extend from South America to the Sico-Paulaya valley, and are rare in Central America. For 3 of the 29 orchid species found (10%) and 12 of the 161 bird species (7.4%) the same applies.

The RPBR is of importance as habitat of a number of globally rare or threatened species, including the monkey "mono olingo" *Alouatta palliate* (CITES I listed), the tapir *Tapirus bairdii* (CITES I listed and considered threatened by IUCN); the jaguar *Panthera onca* (CITES I listed); the ocelot *Leopardus pardalis* (CITES I listed) and the giant anteater *Myrmecopha tridactyla* (considered threatened by IUCN). Based on the estimates of

In addition, the RPBR contains important ethnic and cultural diversity, with significant populations of indigenous Miskitos and Pech, who conserve much of their culture and language, as do the third non-*mestizo* group, the Afro-Caribbean origin Garífunas.

ii) Carbon: Trines (1998) estimates that in Costa Rica humid tropical forest (*sensu* Holdridge 1970, 1987), which is the dominant lifezone in the Sico-Paulaya pilot area, contains 378.6 tonnes of dry biomass per hectare, equivalent to 189.3t/ha of carbon

(using the conversion factor of 0.5 recommended in IPCC, 1995). Assuming that these figures hold true to Sico-Paulaya, the remaining 980km^2 (98,000ha) of forest in the pilot area contains a total of 18,551,400 tonnes of carbon.

b) Texíguat Pilot Area

General Description

i) Location: This pilot area, with a total extent of 885km^2, is located in the dry south of the country at the intersection of the Departments of Choluteca, Francisco Morazán and El Paraíso (Map 2 in Annex V ii). It makes up 12% of the Choluteca river watershed, one of the 3 main watersheds that drain into the transboundary waters of the Gulf of Fonseca.

ii) Physical conditions: The watershed is divided into several valleys, including those of Texíguat, San Pedro, Maraita and Nueva Armenia (Map 7). It is highly dissected, with a steep topography and wide altitudinal range (from 200 to 2,000masl) (Map 4). With the exception of the alluvial "valley soils" in the extreme north, the soils of the area are of limited agricultural potential, due largely to slope and stoniness (Map 5).

The area's climate is one of the most extreme in the country. Average annual rainfall for the lower part of the watershed is around 800mm, which makes it one of the driest parts of the country and indeed the region. The impact of this low rainfall is especially evident in the lowest and hottest part of the watershed, with a tropical climate (very dry tropical forest *sensu* Holdridge, 1970, 1987) and average annual temperature of more than 28ºC. In Zúniga's (1990) classification, the area is considered to have a low rainfall transitional climate, the driest months being January and February and the wettest May (200mm monthly average) and September. The climate is highly seasonal; in addition to the main dry season there is a pronounced *canícula* of around 2 months duration in July and August. Although there is no rain gauge in the area, the nearest stations (at Toncontín and Choluteca) show a steady decrease in rainfall from 1965 to 1995. The four-year monthly average for September in Choluteca, for example, has declined from around 400mm in 1965 to around 300mm in 1990.

The wide altitudinal range described above also leads to wide climatic variations; within a distance of around 10km in the southern part of the watershed, for example (between the Texíguat valley and Cerro de Mandasta) the altitude ranges from around 200m to 1,200masl (Map 4), the average annual rainfall from 800mm to 1,300mm (Map 6) and the Holdridge life zones from *very dry tropical forest*, through *subtropical dry forest*, *subtropical humid forest* to *lower montane humid forest* (Map 11).

iii) Vegetation. In contrast to the Sico-Paulaya pilot area, 86% of the Texíguat pilot area is agricultural and only 14% is forested (Map 8). Of the forest area, 60% is Pine (*Pinus oocarpa* and *P. oocarpa* var. *trifoliata*) and the rest broadleaved.

Global environmental values

i) Biodiversity: Despite its limited size and the extent of the degradation processes over much of its area, the Texíguat Pilot Area contains 7 natural ecosystems (AFE-COHDEFOR, 2002) (Map 8).

i) Lowland deciduous microfoliate scrub. This ecosystem is open in nature, with shrubs and small trees (principally Leguminosae) mixed with various species of arborescent cacti. It is typically associated with high degrees of endemism; this site is home to *Pachycereus schumanni*, an arborescent cactus endemic to this and one other valley in the south of Honduras (the valley of Oropolí).

ii) Submontane pine forest (*Pinus oocarpa* var. *trifoliata*). This ecosystem is dominated by *Pinus oocarpa* var. *trifoliata*; other species present include *Byrsonima crassifolia*, *Quercus oleioides*, *Simarouba glauca*, *Clethra macrophylla* and *Curatella americana*.

iii) Lower montane pine forest. These forests are dominated by *P. oocarpa*, but *P. maximinoi* and *Liquidambar styraciflua* are also occasionally present.

iv) Submontane oak forest (seasonal evergreen submontane forest, variant *Quercus oleioides*). This ecosystem contains a high diversity of epiphytes, with many species of orchids (including the very rare *Rhyncholaelia dygbyana*) and bromeliads.

v) Semideciduous submontane forest (variant *Quercus segoviensis*). This ecosystem contains four oak species: *Q. segovienses*, *Q. pulula*, *Q. rugosa* and *Q. sapotifolia*.

vi) Seasonal lower montane evergreen forest. This forest is highly diverse with many tree and epiphyte species. Characteristic species include *Quercus cortesii*, *L. styraciflua*, *Laplacea grandis*, *Oreopanax xalapensis*, *O. lanchocephalus*, *Carpinus caroliniana* and *Pinus maximinoi*.

vii) Seasonal upper montane evergreen forest. These small fragments of cloud forest, in the highest points of the watershed, are highly disturbed and on the point of being completely eliminated. They are dominated by oak species including *Q. cortesii* and *Q. bumelioides*.

According to the classification of Holdridge (1970, 1987), which defines on the basis of climatic and altitudinal factors the types of vegetation that would be present in the absence of anthropogenic factors, 4 life zones are present in the watershed (Map 11):

i) Very dry tropical forest
ii) Subtropical dry forest
iii) Subtropical humid forest
iv) Lower montane humid forest.

The classification of Dinerstein *et al*. (1995), meanwhile, recognizes 4 terrestrial ecoregions as being represented in the watershed (Map 12):

i) Central American spiny scrub. Dinerstein *et al.* (1995) recommend that the lower Texíguat valley (together with the nearby Oropolí valley and the Aguán valley in the north of the country), should be considered as part of the same spiny scrub ecosystem as the Motagua Valley in Guatemala (Map 14). They consider this ecoregion (around 25% of the global extent of which is present in the Texíguat valley) to be critically threatened at a global level, outstanding at bioregional level due to its high biodiversity and distinctive character, of high conservation priority at regional (Central American) level and conservation priority level II at Latin American level.

ii) Central American Pacific dry forest. This ecoregion extends along the whole Pacific coast of Mesoamérica from Mexico to Costa Rica. In only a few isolated areas is it still in a primary state, principally in Mexico. Dinerstein *et al*. (1995) also consider this ecoregion to be critically threatened at global level, outstanding at bioregional level and of high priority for conservation at regional level.

iii) Central American pine and oak forest. This ecoregion is one of the most extensive and characteristic of northern Central America. It is classified by Dinerstein *et al*. (1995) as globally vulnerable, outstanding at bioregional level and of moderate regional conservation priority.

iv) Central American montane forest. This ecoregion is considered globally threatened, bioregionally outstanding due to its biodiversity and of high regional conservation priority.

The Pilot Area contains a high diversity of tree species, despite the fact that only 11 % of its area is made up of natural ecosystems; 144 species of woody plants were found, including cacti and palms. The majority are found in the lower part of the watershed and are relics of the former deciduous forest. Six endemics are known, namely: the cactus *Pachycereus schumanii*, endemic to the Texiguat and Oropolí valleys; the shrub *Robinsonella erasmi-sosae*, endemic to a single site in the Pilot Area (Cerro de Ayasta); the tree *Terua vallicola*; the bromeliad *Hechtia malvernii*; *Guattarda sageretioides* and *Ipomoea riparum.*

Other rare or limited range species include *Leucaena salvadorensis,* endemic to the Gulf of Fonseca drainage, which is of international importance as a multi-purpose tree (Hughes, 1998); and the binationally endemic cactus *Nyctocereus nicaraguensis*, only reported in the south of Honduras and in Nicaragua.

Table X: "Star Ratings" for species in the watershed (*sensu* Hawthorne and Abu-Juam 1995).

Genus	Species	Family	Endemism status	Star rating
Ipomoea	*riparum*	Convolvulaceae	Endemic	Black[a]
Pachycereus	*schumannii*	Cactaceae	Endemic	Black
Robinsonella	*erasmi-sosae*	Leguminosae	Endemic	Black
Terua	*vallicola*	Leguminosae	Endemic	Black
Calliandra	*molinae*	Leguminosae	Co-endemic	Gold[b]
Casearia	*williamsiana*	Flacourtaceae	Co-endemic	Gold
Eugenia	*hondurensis*	Myrtaceae	Endemic to Central America	Gold
Guattarda	*sageretioides*	Rubiaceae	Endemic	Gold
Hechita	*malvernii*	Bromeliaceae	Endemic	Gold
Jatropha	*stevensii*	Euphorbiaceae	Co-endemic	Gold
Leucaena	*salvadorensis*	Leguminosae	Endemic to Central America	Gold
Nyctocereus	*nicaraguensis*	Cactaceae	Co-endemic	Gold
Pedilanthus	*camporum*	Euphorbiaceae	Endemic to Central America	Gold

Platymisciu m	*parviflorum*	Leguminosae	Endemic to Central America	Gold

[a]**Black Star:** endemic to Honduras

[b]**Gold Star:** endemic to Honduras but also present outside of dry forest, or endemic to dry forest in 2-4 Central American countries.

ii) Ecological services: in addition to its own intrinsic value, the drainage system of which the Texíguat watershed forms a part is crucial to the ecology of the transboundary waters of the Gulf of Fonseca, which are divided between Nicaragua, Honduras and El Salvador. The mangroves of the Gulf, which are the most extensive of the Pacific coast of Central America, have been declared as the 1000th Ramsar site and form a key part of the Pacific portion of the Mesoamerican Biological Corridor. PROARCAS (2001) attribute 3 of the principal threats to the Gulf of Fonseca corridor to the watersheds which drain into it: sedimentation, agrochemical pollution and changes in natural water cycles. The ecological effects of the sedimentation are: water eutrophication and algal "red tides"; mortality among fish, crustaceans and molluscs; filling in of wetlands and reduction of landscape values. Economic impacts include the loss of fishery production and aquiculture.

iii) Carbon: Trines (1998) estimates that intact tropical dry forest, which is the most extensive life zone in the Texíguat watershed, contains 227 tonnes of dry biomass per hectare, equivalent to 113.5 tonnes of carbon. The total area of broadleaved woodland in the watershed is 5,217 ha, including both tropical dry forest and oak forest. In the absence of data on the carbon content of this latter forest type, it is assumed here to be the same as tropical dry forest, giving a total carbon content in the watershed's broadleaved woodlands of 592,129 tonnes. Pine forest covers 7,906 ha of the watershed; assuming a carbon content of 150 tonnes per hectare, this accounts for 1,185,900 tonnes of carbon. The remainder of the area (around 75,000 ha) is dominated by pasture, agriculture and fallows within the tropical dry forest life zone. Significant quantities of root and stump material remain alive after forest clearance in this life zone (Gentry, 19XX reports a much higher root/shoot ratio for tropical dry forest than tropical humid forest, and Barrance *et al*. in press found between 5,500 and 11,500 live stumps per hectare in fields in dry forest areas in southern Honduras). It may tentatively be assumed therefore that in this life zone carbon reserves are around 50-60 tonnes per hectare (around 50% of the value of natural vegetation), equivalent to a total of 4,125,000 tonnes.

Total carbon reserves in the pilot area are therefore estimated at 5.8 million tonnes. Due to the lack of data on per hectare carbon content of the specific vegetation types encountered here, this figure should be regarded as a very broad approximation.

Annex I i. Sico Pilot Area: Summary Table of Threats to Global Benefits and their Causes

Underlying causes	Proximate causes	Threats	Implications
1. Limited social capital and organizational capacity among local inhabitants (1, 3, 4, 8)	1. Inadequate local governance (1, 2, 3, 6, 7)	1. Forest conversion to cattle pasture in the RPBR buffer zone and Los Mangos corridor	Loss of ecosystem level diversity
2. Inadequate investment in agricultural frontier areas (1, 5)	2. Induced settlement of *campesino* groups outside of RPBR buffer zone (1, 2, 4, 5, 7)	2. Shifting agriculture in the RPBR buffer zone and Los Mangos corridor.	Loss of species level diversity
3. Favourable policy environment for extensive cattle ranching (6)	3. Low local perceptions of value of forest resource (1, 2, 3, 4, 5)	3. Illegal logging	Loss of carbon reserves
4. Lack of usufruct rights among RPBR inhabitants (4)	4. Cheap open access land in RPBR buffer zone (1, 2)	4. Ranching and agricultural activities by *campesino* groups in resettlement areas	
5. Poor access (5)	5. Limited productive options (1)	5. Land clearance in the delta area to demonstrate ownership	
6. Degradation of population expulsion zones (8)	6. Profitability of extensive cattle ranching (1)	6. Opening of unauthorized access roads	
7. Reproductive growth (8)	7. High levels of national demand for mahogany (3)	7. Hunting	
8. Poorly regulated national timber market (7)	8. Population growth (2)		
9. Incomplete land titling (1)	9. Cultural habits (7)		
10. Lack of coherence and coordination in application of policies (2)			
11. Lack of clarity in forestry and agrarian laws (2)			

Annex I ii. Texíguat Pilot Area: Summary Table of Threats to Global Benefits and their Causes

Underlying causes	Proximate causes	Threats	Implications
1. Centralized policy formulation and regulation (1, 7)	1. Inadequate local governance (1, 3, 5, 6, 7, 8, 9)	1. Application of inappropriate agricultural practices	Loss of ecosystem level diversity
2. Land degradation (vicious circle) (1, 5, 6)	2. Inappropriate technical support by projects and institutions (1, 3, 4, 6, 8, 9)	2. Increases in areas under crops.	Loss of species level diversity
3. Limited perceptions of natural resource values and services (1, 3, 10)	3. Cultural habits (1, 3, 5, 7, 9)	3. Maintenance of inadequate tree densities in fields	Loss of carbon reserves
4. Poorly developed social capital and organizational capacity (1, 3, 8)	4. Climatic conditions (1, 3, 5, 8)	4. Cattle ranching	Degradation of land productivity and resilience
5. Favourable policy environment for extensive cattle ranching (5)	5. Relative profitability and resilience of extensive cattle ranching (4, 5, 7)	5. Wildfires in higher level forests	Degradation of transboundary waters
6. Reproductive growth (9)	6. Labour shortages (1, 5, 9)	6. Clearance of montane forests for vegetable growing	
7. Misconceptions of social and biophysical processes (2)	7. Lack of tenure and usufruct security (1, 3)	7. Degradation of micro-watersheds	
	8. Ready market access (4, 6)	8. Excessive use of water for irrigation	
	9. Population growth (2)	9. Inappropriate use of agrochemicals	
	10. Lack of charges for water use (8)		

Annex J i. Sico-Paulaya Pilot Area: Activities to Counter Threats

Outputs and Activities	Underlying causes (X)											Proximate causes (+)								
	1. Limited social capital and organizational capacity	2. Inadequate investment in agricultural frontier areas	3. Favourable policy environment for extensive ranching	4. Lack of usufruct rights among RPBR inhabitants	5. Poor access	6. Degradation of population expulsion zones	7. Reproductive growth	8. Poorly regulated national timber market	9. Incomplete land titling	10. Lack of coherence in application of policies	11. Lack of clarity in forestry and agrarian laws	1. Inadequate local governance	2. Induced settlement of *campesino* groups	3. Low local perceptions of value of forest resource	4. Cheap open access land in RPBR buffer zone	5. Limited and inappropriate productive options	6. Relative profitability of extensive cattle ranching	7. High levels of national demand for mahogany	8. Population growth	9. Cultural habits
Output 2.1: Application of cross-sectoral and participatory planning for IEWM in the two pilot areas. .																				
2.1.1 Facilitation of watershed and natural resource management planning	X			X	X				X	X		+	+	+	+	+				+
Output 2.2: Inclusion of considerations of IEM in the policy formulation and lobbying processes of key national institutions, with mandates in resource management and rural development, has led to modifications in legislation, policies, regulations and economic incentives which promote global environmental benefits in the pilot areas.																				
2.2.1 Capacity strengthening and information support to lobbyers	X	X	X	X	X			X	X	X	X	+	+	+	+	+	+			+
2.2.2 Promotion of regional level policy formulation	X	X	X	X	X			X	X	X	X	+	+	+	+	+	+			+
Output 2.3: Demonstration projects in alternative productive and land-use practices established in the pilot areas providing critical information for the application of IEM.																				
2.3.1 Multi-use environmental centres in SPPA.	X	X										+		+		+				+
2.3.2 Micro-hydroelectric systems in SPPA.		X												+		+				
2.3.3 Demonstration farms in both pilot areas		X												+		+				+
2.3.4 Information resources in both pilot areas	X	X								X		+				+				

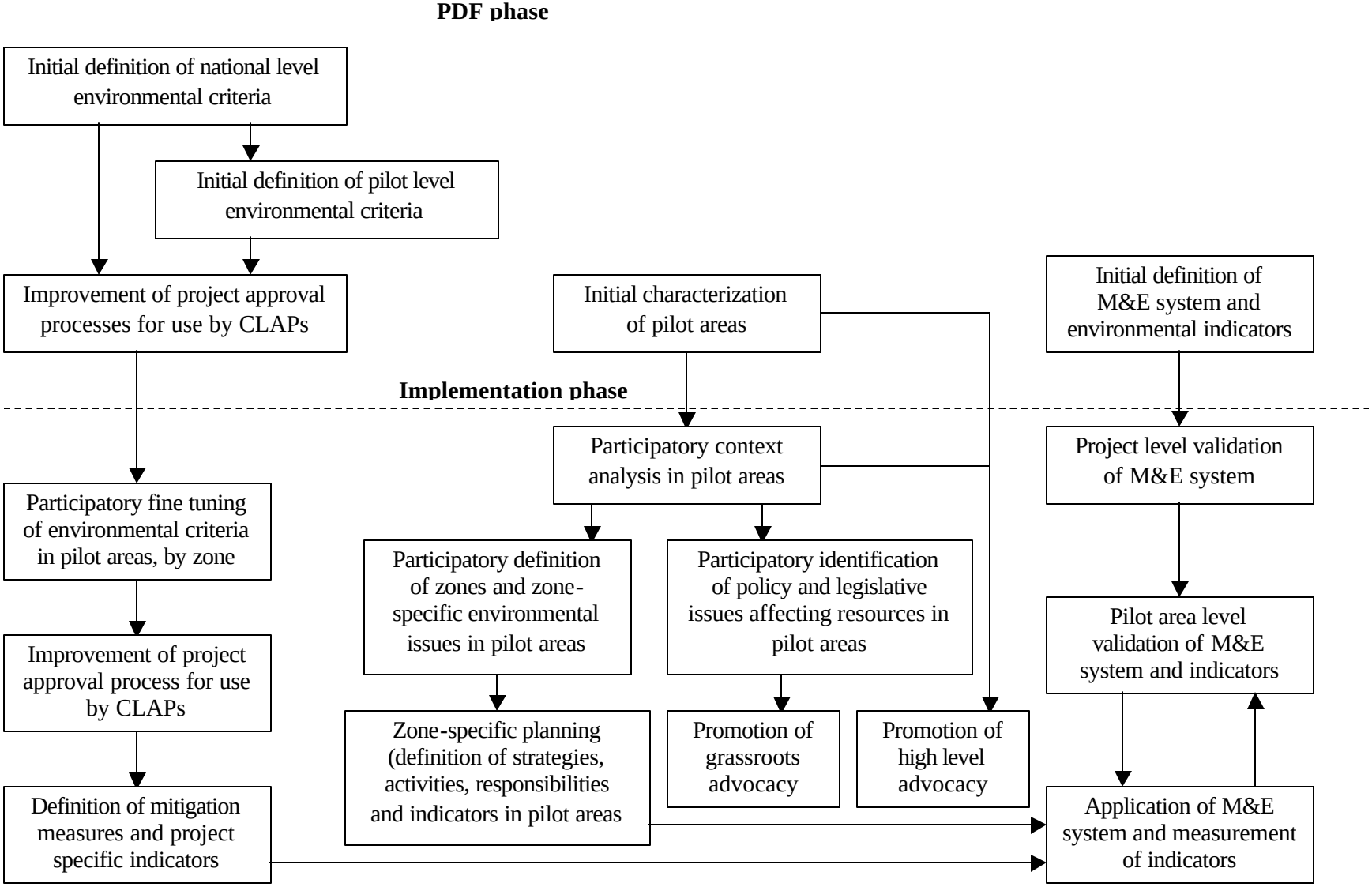
2.3.5 Support of other environmental investment projects																				
Output 2.4: Key institutions in pilot areas have increased awareness in, and capacity for applying and enforcing IEM.																				
2.4.1 Awareness and information support of counterparts in pilot areas	X	X								X		+		+		+				+
2.4.2 Provision of training and support to judicial system								X				+								
2.4.3 Awareness raising on environmental services														+		+				
2.4.4 Logistical and financial support to applied thesis research		X								X		+		+		+				+
Output 2.5: Local stakeholders in the pilot areas have increased awareness in, and capacity for applying IEM and alternative land use practices .																				
2.5.1 Provision of training and support to local communities in pilot areas	X			X								+		+						+
2.5.2 Awareness and capacity building among local organizations	X											+								
2.5.3 Provision of training and marketing support for ecotourism		X												+		+				
2.5.4 Provision of support to forestry cooperatives in SPPA		X												+		+				
2.5.5 Support for the sustainable management of biodiversity														+						
2.5.6 Promotion of farmer-farmer interchanges in TPA																				
2.5.7 Promotion of Integrated Pest Management in TPA.																				

Annex J ii. Texíguat Pilot Area: Activities to Counter Threats

Outputs and Activities	Underlying causes (X)							Proximate causes (+)									
	1. Centralized policy formulation and regulation	2. Land degradation	3. Limited perceptions of natural resource values and services	4. Poorly developed social capital and organizational capacity	5. Favourable policy environment for extensive ranching	6. Reproductive growth	7. Misconceptions of social and biophysical processes	1. Inadequate local governance	2. Inappropriate technical support by projects and institutions	3. Cultural habits	4. Climatic conditions	5. Relative profitability and resilience of extensive ranching	6. Labour shortages	7. Lack of tenure and usufruct security	8. Ready market access	9. Population growth	10. Lack of charges for water use
Output 2.1: Application of cross-sectoral and participatory planning for IEWM in the two pilot areas. .																	
2.1.1 Facilitation of watershed and natural resource management planning	X	X		X				+	+	+							+
Output 2.2: Inclusion of considerations of IEM in the policy formulation and lobbying processes of key national institutions, with mandates in resource management and rural development, has led to modifications in legislation, policies, regulations and economic incentives which promote global environmental benefits in the pilot areas.																	
2.2.1 Capacity strengthening and information support	X				X			+	+			+		+			+
2.2.2 Promotion of regional level policy formulation	X				X			+	+			+		+			+
2.2.3 Action research to promote local lobbying and lobbying capacity	X		X		X			+	+			+		+			+
2.2.4 Promotion of inter-institutional coordination	X				X			+	+			+		+			+
Output 2.3: Demonstration projects in alternative productive and land-use practices established in the pilot areas providing critical information for the application of IEM.																	
2.3.1 Multi-use environmental centres in SPPA.																	
2.3.2 Micro-hydroelectric systems in SPPA.																	
2.3.3 Demonstration farms in both pilot areas		X					X		+	+		+	+				

2.3.4 Information resources in both pilot areas			X				X		+								
2.3.5 Support of other environmental investment projects																	
Output 2.4: Key institutions in pilot areas have increased awareness in, and capacity for applying and enforcing IEM.																	
2.4.1 Awareness and information support of counterparts in pilot areas			X	X			X	+	+	+							
2.4.2 Provision of training and support to judicial system in SPPA																	
2.4.3 Awareness raising on environmental services			X														+
2.4.4 Logistical and financial support to applied thesis research			X	X			X		+	+							
Output 2.5: Local stakeholders in the pilot areas have increased awareness in, and capacity for applying IEM and alternative land use practices .																	
2.5.1 Provision of training and support to local communities in pilot areas				X				+						+			
2.5.2 Awareness and capacity building among local organizations	X			X				+						+			
2.5.3 Provision of training and marketing support for ecotourism			X														
2.5.4 Provision of support to forestry cooperatives in SPPA																	
2.5.5 Support for the sustainable management of biodiversity			X	X				+		+		+					
2.5.6 Promotion of farmer-farmer interchanges in TPA		X		X			X		+	+		+	+				
2.5.7 Promotion of Integrated Pest Management in TPA.		X															

Annex K: Summary of Interrelations between Strategies



Annex L: Description of Stakeholders and Governance Conditions

1. International Level

The Mesoamerican Biological Corridor is a region-wide initiative, covering Central America and southern Mexico, which aims to conserve biological and ecosystem diversity while fostering sustainable development, specifically by protecting key biodiversity sites, connecting these sites with corridors which enable the movement and dispersal of animals and plants promoting social and economic development in and around these sites that conserve biodiversity while being socially equitable and culturally sensitive. The Central American Commission for Environment and Development was established in 1989 to embody a unified vision for regional environmental cooperation.

Related to the MBC framework are a number of development projects and national governmental agencies active in the area of conservation and sustainable development, such as the GTZ-funded BOSAWAS Project in Nicaragua, and the state forestry agencies of Nicaragua, El Salvador, Guatemala, Costa Rica and Panama.

A number of international donor and lending agencies are active at regional level in areas related to this project, including the Interamerican Development Bank (IDB), the Central American Bank for Economic Integration (CABIE), GTZ, the European Union, the UK Department for International Development (DFID), ASDI, COSUDE and USAID.

At international level, institutions which will provide vehicles for the dissemination of results will include the European Tropical Forestry Research Network (ETFRN) and the Overseas Development Institute (ODI) through its Rural Development Forestry Network.

2. National Level

The principal national counterpart will be PRONADEL, as co-implementer of the project. The project will focus on "greening" PRONADEL's support to productive activities; this link is central to the concept of the project. DINADERS is the umbrella entity within the SAG to which PRONADEL is attached, and as such must be taken account in decisions affecting PRONADEL's implementation; it also provides a national-level conduit for the replication of lessons learnt to other projects under its umbrella, and for political lobbying to influence sector laws and policies. At the top of the hierarchy, above PRONADEL and DINADERS, is the Secretariat of Agriculture and Livestock (SAG) whose approval of the project at political level is essential; the SAG is also an important contact point for political lobbying activities by the project. Another key player will be the Environmental Cluster of UNDP as the Contracts Administration Agency (AAC) through which GEF funds will be channeled (as are IFAD funds through the Rural Development Cluster).

The semi-autonomous state forestry authority within the SAG, AFE-COHDEFOR, is of key importance as an institutional counterpart responsible for regulation of the forestry sector and the management and protection (through its Department of Protected Areas and Wildlife, DAPVS) of protected areas. The Director of DAPVS is also coordinator of the GEF-funded Protection of Biodiversity in Protected Areas project (PROBAP), which is promoting buffer zone management in protected areas of the north coast including the Caratasca Lagoon area.

Approval of the project by the Natural Resources and Environment Secretariat (SERNA) is also vital as this is the GEF focal point in Honduras. Lessons learnt by the project will also be useful to the Directorate General of Biodiversity (DIBIO), within the SERNA, in the formulation of policies and activities related to the protection of biodiversity, and to the Directorate of Environmental Control and Evaluation (DECA) also in the SERNA, in the identification of appropriate mechanisms for environmental impact assessment and monitoring. The SERNA is also coordinating the National Watersheds Network, of which the project will be a member.

Key to the land titling process which the project will accelerate through lobbying is the National Agrarian Institute (INA), the entity charged with implementing and supporting the agrarian reform process.

A number of national networks exist for the sharing of information on themes related to development and natural resources management, which will provide opportunities for the dissemination and discussion of lessons learnt by this project; these include the Sustainable Development Network**,** **(**which has an internet site) and the National Association for the Foment of Agroecology (ANAFAE).

3. Partner institutions/co-financers

The project will coordinate, co-execute and where necessary jointly fund activities with other institutions currently working in the two pilot areas. Although in some cases project activities will be delegated to these partners, using project funding, they differ from the "contractors" explained below in that they have their pre-established institutional mission and objectives which will be taken into account at the same time as those of the project. Relations with these partners will be formalized by means of letters of understanding and, where funding is involved, negotiated contracts. These partner institutions will include:

- PRONADEL: the project will "lever" PRONADEL's lending and donation funding in order to achieve environmental benefits, through the negotiation of environmental criteria and the proposal of projects for grant support. The institutional relationship between the GEF project and PRONADEL is presented in Annex Q.
- Proyecto Biósfera del Río Plátano (PBRP): the project will complement PBRP by funding additional technical support to activities (such as sustainable forest management and ecotourism) already supported by that project, thereby permitting the extension of their geographical coverage; funding, or lobbying PRONADEL to fund, environmental projects for which PBRP's resources are insufficient; and building upon the planning and regulation framework already established by PBRP in the buffer zone, by extending land use planning to the whole of the valley. In cases where PBRP staff profiles are appropriate for the activity to be supported, the project will fund PBRP directly to provide technical support; in other cases it will use private contractors.
- WWF and MOPAWI: the project will fund support by these organizations to activities, such as sustainable forest management, planned by them and also identified as priorities by the project itself.

- Pastoral Social de Tocoa (PST): the project will co-execute activities with the PST in the areas of planning and development of social capital in Sico and Paulaya, taking advantage of PST's credibility and experience jointly to discuss, plan and implement activities. This relationship will be subject to constant review in order to avoid the alienation from the planning processes of stakeholders traditionally antagonistic to the sectors with which PST is principally associated.
- Asociación Bayán: funding will be provided for the extension of Bayán's Tutorial Learning System (SAT) to the Sico-Paulaya area (it is currently limited to coastal communities) and for strengthening its environmental and resource management components.
- Instituto Velásquez in Sico: the project will provide materials for environmental education, and technical support and materials to develop the institute's demonstration farm as a centre for the promotion of sound land management.
- International Centre for Information on Cover Crops (CIDICCO): the project will support the training of farmers from the Texíguat pilot area at the Teaching and Learning Centres (CEAs) supported by CIDICCO in Sabanagrande and Nacaome. This support will be in the form of the funding of "scholarships", to be processed through CIDICCO under the terms of a letter of understanding.
- PESA: the project will co-execute municipal planning activities in the Texíguat catchment with PESA, taking advantage of its experience, staff resources and established relations with local actors, and providing in return funding and information support.

4. Contractors

The provision of technical support, in gaps not currently covered by existing institutions, will be carried out by the contracting of individual consultants or "rural development enterprises" (small consultancy companies). This will be in accordance with UNDP norms, requiring competitive bidding for activities above a certain monetary value. The terms of reference will be established by the project (in contrast to the situation with "partner institutions" described above, with whom the ToRs will be negotiated).

5. Local level institutional stakeholders

Municipal authorities are legally responsible for managing and protecting natural resources within their areas of jurisdiction, specifically through their Environmental Management Units (UMAs). There also exist a number of *mancomunidades* or groups of municipalities formed around specific commonalities of interest, such as the *Mancomunidad* of Garífuna Municipalities to which the municipality of Iriona belongs.

Institutions working in the pilot areas may be divided into two categories:

i) Local offices of State entities, namely AFE-COHDEFOR, the National Agrarian Institute (INA) and the Sico-Paulaya Project (a dependency of DINADERS). In the Río Plátano Forest Region, AFE-COHDEFOR is

supported technically and logistically by the GTZ-funded Río Plátano Biosphere Reserve Project (PBRP).

ii) Projects and NGOs, including, in Sico-Paulaya, the Pastoral Social de Tocoa, Asociación Bayán, CISP, Popol Nah Tun, MOPAWI, COSPE and Trocaire and, in Texíguat, Visión Mundial, PESA, CIDICCO and Cáritas Arquediocesana.

iii) Private consultancy companies providing services to PRONADEL participants, including in the Texíguat pilot area ANEDH and ESTYCSA.

6. Local organizations of stakeholders

Local organizations will have a key role in representing the interests of diverse stakeholder groups in the implementation of the project. Principal among these in Sico-Paulaya will be the Committee for the Development of Sico and Paulaya (CODESPA), the organization which most represents the area's diverse interest groups. The Popol Nah Tun Foundation represents the interests of *campesino* groups in the area and other parts of the north coast (including the Aguán Valley); this organization is marginally distinguishable between being a stakeholder organization and an institution.

At the community level, in both Sico-Paulaya and Texíguat, are *Juntas de Agua* and *Patronatos*; in Sico-Paulaya the inhabitants of the resettlement areas are organized into *campesino* groups or *empresas*, under the umbrella of their respective associations the National Campesino Association (ANACH) and the Sico-Paulaya Campesino Movement.

The Zonal Biosphere Orientation Committee (COZOB) in Sico-Paulaya, although at present largely inactive, may be of importance for the development of environmental criteria and plans in the RPBR, complementing those already established under the auspices of GTZ/AFE-COHDEFOR. The Regional Biosphere Orientation Committee (COROB), made up of the regional head of AFE-COHDEFOR, the head of DAPVS, the national director of the PBRP, representatives of indigenous groups, mayors and NGOs, aims to promote inter-institutional coordination in the RPBR.

Representing those producers participating in PRONADEL are the Local Management Structures (EGLs) established under that programme's auspices. These operate at community level and, while they were initially conceived to be formed exclusively of producers, it is now proposed that they be opened up to other community members.

7. Local stakeholder sectors

In addition to the organizational stakeholders mentioned above, the project will interact with local stakeholders as individuals, irrespective of whether they are grouped or not. The characteristics of the main stakeholder sectors identified in the two pilot areas are described below. An important distinction to make among these diverse stakeholders is between those who, due to their socioeconomic characteristics, are eligible for support by PRONADEL/IFAD and those who are not. This distinction will affect the project's strategy: through the former group the project will be able to exert influence through

modifying PRONADEL's lending practices, but the population of a whole will be involved in the planning and technical assistance activities.

i) Sico-Paulaya Pilot Area

Ethnic groups

The area is currently home to three principal ethnic groups (Maps 15-18, Annex V i):

- Ladinos, of mixed European/indigenous origin, who have immigrated from other parts of the country and now constitute the vast majority of the population of the valley;
- Garífunas, of Afro-Caribbean descent, who are confined to coastal communities and maintain a distinct language and culture based on fishing and rootcrop production;
- Indigenous Miskitos, who principally occupy the lower part of the Sico valley between Sico village and the sea and practise seasonal migration.

The original inhabitants of the valley, prior to the entry of the Standard Fruit banana company at the beginning of the 20th century, were indigenous Pech people; these have been marginalized to the Dulce Nombre de Culmí area and the upper-middle watershed of the Sico river (outside of the pilot area).

Stakeholder groups

The Sico-Paulaya pilot area is notable for the existence of clearly defined stakeholder groups, the principal ones being the following:

a. Miskitos: This group, formed by the mixing of indigenous peoples and black Afro-Americans, is the longest-established of the stakeholder sectors in the area. They are concentrated in the lower part of the Sico valley between its confluence with the Paulaya and the sea, and practise subsistence agriculture, migrating seasonally between the forest areas and river banks.
b. Garífunas: This group is of Afro-Caribbean origin, formed by the mixing of African slaves and indigenous Carib peoples on the island of Saint Vincent, prior to their arrival in Honduras just over 200 years ago. They are almost exclusively confined to the coast where they conserve a strong ethnic identity (including a thriving language) centred on fishing and subsistence farming. There is much emigration of Garífunas to the USA; the funds sent back by the emigrants are an important source of income.
c. *Mestizos* of well-established communities: The majority of this population is derived from the workers who remained when the Standard Fruit banana company withdrew from the valley in the 1930s. They are distributed throughout the watershed, but are concentrated in the middle part of the valley from Sico village inland. Due to the history of isolation, these communities have, over the last 70 years, developed their own particular productive and organisational dynamics. Within this sector, a number of sub-groups can be distinguished (between which there is much overlap), including large and medium scale ranchers, independent farmers and the commerce and service sectors.

d. *Campesino* groups in recent settlements: These 36 groups are a result of the induced migration promoted by the National Agrarian Institute in the mid-1990s, and are affiliated variously to the national *campesino* organization ANACH and the Independent Campesino Movement of Sico. Their members are from a number of different parts of the country, but mostly from the west and north-west. They are located on the west side of the valley, below the 200m contour (the limit set by the Decree which authorized the settlement). Currently they are concentrated in a central community named Jardines de la Sierra, but progressively are establishing new settlements on the land titled to each group.
e. New ranchers: These ranchers, typically from the neighbouring Department of Olancho, have been attracted to the area by the availability of land and problems of insecurity in their areas of origin. In addition to fattening cattle on recently cleared forest land, they also carry out basic grain production. Despite their relatively recent arrival in the area, some of the members of this sector are becoming influential in discussions related to the development of the area, in association with the settled *mestizo* inhabitants described above.
f. Pioneer farmers at the agricultural frontier: These farmers, who normally operate as individuals without organization, typically arrive in the area in a speculative manner, and clear forest at the very agricultural frontier, normally in advance of cattle ranchers.
g. Forestry cooperatives: There are *bona fide* forestry cooperatives in the communities of Copén and Paya, carrying out forest management activities under AFE-COHDEFOR approved management plans. There are a number of other groups as well, many of which are manipulated by external actors who use them as a front for illegal extraction activities.
h. Intermediaries: Intermediaries play a key role in the productive and extractive dynamics of the area. Individuals from cities such as El Progreso, San Pedro Sula and La Lima, largely control the extraction (both legal and illegal) and trade of timber; others control the trade in cattle between Olancho and the pilot area, which is a key driving force for forest clearance; and others control the export of cheese produced in the valley to north coast cities.
i. New landowners: During the 1980s and 1990s, large areas of valley land were claimed by external actors, in many cases as party political favours. Much of this land was subsequently affected by the agrarian reform process of the 1990s, but a number of these landowners still have presence in the area (in many cases as absentee landowners).

Conflicts and relations between stakeholder groups

The diversity of stakeholder groups and the social and economic dynamics of the area have given rise to a number of conflicts which are of great relevance for project implementation.

- **Municipal secession:** the largely *ladino* population of the middle and upper part of the Sico-Paulaya valley resents their administrative dependence on municipal authorities in the coastal, Garífuna dominated town of Iriona (Map 3), which they feel does not represent their interests (although the municipal authorities

recognise the importance of the valley as a source of tax revenue). A committee has been formed to lobby for the formation of a new municipality in the Sico area.

- **Commercial relations:** despite the limited development of export production due to access problems, producers in the valley do sell quantities of cheese, meat and basic grains produced there to the coastal Garífuna communities. Another important trade relationship is the introduction by intermediaries of bullocks purchased from ranchers in the neighbouring Olancho department, for fattening in the valley.
- **Access routes:** the opening by Sico residents of the *brecha* access road from Ciriboya to Sico, in 2001 (Map 1), has led to concerns among Garífuna communities about possible damage to their water sources. There is difference of opinion between these two sectors about where the access road should run: Sico residents favour the *brecha* route, arguing the swampiness of the alternative route along the abandoned railroad or *terraplen*; while the Garífunas favour the *terraplen* route as it would give access to a number of Garífuna communities. The unauthorized opening of the *brecha* route has also led to conflicts with Government entities, principally the environmental Ministry SERNA.
- **Defense of water sources:** a common theme among the different interest groups is the protection of water sources. As explained, this is behind the Garífunas' concerns over the construction of the *brecha* access road; it also has led the *campesino* groups in the Jardines de la Sierra area into conflict with ranchers and new settlers who they perceive to threaten their water sources within the national lands of Sierra de Río Tinto.
- **Timber extraction:** the illegal extraction of timber causes conflict between local inhabitants and those responsible, due to its perceived environmental impacts. The municipal government of Iriona has banned the transport of timber through the Garífuna communities, and the municipality of Juan Francisco Bulnes levies taxes on the timber that arrives at the mouth of the Sico river. The lucrative nature of this illegal trade also undermines the area's already weak governance, making the position of the AFE-COHDEFOR staff in the area largely untenable.
- **Land conflicts:** the induced settlement of *campesino* groups in the valley in the 1990s has led to conflicts between them and landowners who lost land to them. The land conflict has been exacerbated by the slowness of the titling process. There is also competition between ranchers and small farmers for currently unoccupied lands at the agricultural frontier, within the RPBR buffer zone. The settlement of the *campesino* groups on the west side of the valley has led ranchers to divert their activities away from this area, to avoid conflict with the groups, and towards the RPBR buffer zone, where they enter into conflict with RPBR regulations.

Governance conditions

The Sico-Paulaya pilot area in particular is characterized by conditions of inadequate governance. There are high levels of illegal extraction of timber and in the Mosquitia as a whole there are reportedly significant levels of drug trafficking, both of which lucrative activities tend to undermine the capacity of what limited local authorities there are to enforce regulation. AFE-COHDEFOR, for example, despite material support and training

from the GTZ-funded Río Plátano Biosphere Reserve Project, has had a limited effect on the rates of illegal timber extraction; a recent visit by the Environmental Procurator Fiscal led to threats against a number of members of AFE-COHDEFOR field staff which obliged them to leave the area temporarily (the area also has no permanent police presence which could back up AFE-COHDEFOR staff in their enforcement activities). The effectiveness of AFE-COHDEFOR local park rangers is limited by the fact that they are from local communities, which limits their ability safely to face up to situations of illegality.

Governance conditions are also limited by the diversity of local stakeholder sectors, the disparity of their interests and the conflicts between them (see Annex L), a situation which was further exacerbated by the induced immigration of *campesino* groups into the valley in the mid 1990s and the associated land reform process. The fact that a large part of the population is relatively newly arrived in the area has limited possibilities for governance structures to gel; linked to this are the poorly defined conditions of tenure and usufruct rights, which exacerbate conflicts and undermine organizational and social stability.

The municipal governments in both municipalities are severely under-resourced and lack technical and financial capacity for environmental control, a situation which is exacerbated by the resistance of Sico residents to being included within the jurisdiction of a municipality based in a coastal community (Iriona) and traditionally dominated by garífunas.

In effect, therefore, AFE-COHDEFOR and municipal governments attempt to carry out their regulatory functions as institutional islands in a sea of poor governance and frontier culture.

ii) Texiguat

Ethnic groups

The population of the area is composed entirely of mixed race *mestizos*. Vestiges of indigenous culture remain apart from the agricultural systems (especially the intercropping of maize, beans and squash) which are pre-Hispanic in origin (Ardon, 19XX); and the now largely-erased animistic carvings on the façade of Texíguat church. In the more isolated villages, however, indigenous facial characteristics are more readily observable, suggesting a limited degree of *mestización*; even here, though, indigenous cultural traits have all but disappeared.

Stakeholder groups

The population of the Texíguat pilot area is much less clearly segregated into definable interest groups than that of Sico-Paulaya; between many of the groups identified below there is a significant degree of overlap.

a. Large scale ranchers: These ranchers typically have between 100 and 200 head of cattle, and also areas of land dedicated to agricultural production.
b. Medium scale ranchers: These producers, who typically have between 30 and 100 head of cattle, tend to face problems maintaining their cattle in the more critical periods of drought. As a result they may "foster" their cattle to others who look after them in return for the milk produced.

c. Small scale ranchers: This scale of producers is much more common than those already mentioned; there is a high degree of family involvement in maintaining the herd and processing the products and sub-products (including curd, cream and cheese) and the domestic production of milk-based derivatives (cakes, *rosquillas, quesadillas* etc.).
d. Salaried workers: The hiring out of labour as a supplement to individual productive activities is a common livelihood strategy; this sector therefore overlaps with most of the other sectors mentioned. This labour force (which is limited due to emigration) is largely made up of men of intermediate age who, in times of crisis, also look for employment outside of the area.
e. Emigrants established in Tegucigalpa: Due to the proximity of the area to the capital city of Tegucigalpa, there is a significant population based and involved in stable work in Tegucigalpa, but who maintain links with their villages of origin such as Nueva Armenia (Map 1).
f. Semi-established emigrants: A variation on the above is the case of people who work in Tegucigalpa but return regularly to the area and may maintain cultivation plots; this sector tends to have a greater interest in eventually returning to the area than the well-established emigrants already mentioned.
g. Temporary emigrants: Traditionally many people migrate for a period each year to coffee-growing parts of the country such as Danlí; due to the slump in coffee prices, this has become less attractive, but there remains much seasonal migration within the watershed to work in basic grain production.
h. Resin producers: These producers are concentrated in the pine forests of the upper, eastern part of the watershed (Map 8).
i. Coffee producers: these actors, located in the upper part of the watershed, are undergoing a crisis due to the depressed prices of coffee; they are organized into producer groups.
j. Peanut producers: this is a geographically concentrated sector of the population, limited in number due to the problems of low prices, high labour requirements and pest problems of this crop.
k. Traders: there is a very diverse small-scale trading sector in the area.

Governance conditions

Conditions of governance in Texíguat are generally better developed than in Sico-Paulaya, due largely to its longer history of established settlement. Although many farmers lack formal land tenure, tenure and usufruct rights are generally well defined and respected among local inhabitants and few conflicts exist. Conflicts are also minimized by the generally greater homogeneity of the stakeholders here; although wide variations exist between individuals in terms of productive activities and access to services, capital and income, there is little division into discrete sectors with differing or conflicting interests. Municipal governments have a greater presence, due in part to the smaller size of the municipalities here (Map 3).

Despite this, conditions for the planning and regulation of the management of natural resources are poorly developed. This is due largely to a continued concentration of responsibilities in central government, as a result of inadequate investment in the technical and financial capacities of local (municipal) government, and concerns as to the

transparency of local governments. An additional contributing factor is the failure of regulations and policies (for example in relation to tree and forest resources) to recognize the very specific socioeconomic and biophysical characteristics of this area, which are distinct from the pine and broadleaved forest areas elsewhere in the country.

Summary table of stakeholder relations

	GEF Focal point	GEF Implementing agencies	Executing agency	Contract administration	National Project Director	Physical location of project personnel	Representation on steering committee	Sector/geographical authorities	Thematic guidance	Partners/channels for co-financing	Contractors/executors	Media for replication	Recipients of project outputs /strengthening	Affected by criteria for PRONADEL support	Participants in planning processes	Beneficiaries of grant support
SERNA																
Minister	X							X								
Vice-Ministers							X	X								
DGA							X	X	X	X			X			
DECA								X	X				X			
DIBIO								X	X				X			
Water Resources Directorate								X	X				X			
SAG			X													
Vice-Minister					X		X	X								
DINADERS						X	X	X	X			X	X			
PRONADERS projects													X			
DICTA									X							
PRONADEL						X				X		X	X			
COMUS									X			X				
Public Ministry																
Environmental Prosecutor													X			
Gobernación																
Director of Land Use Planning								X	X				X			
AFE-COHDEFOR																
Regional offices								X								
Río Plátano Project										X	X		X			
DAPVS								X	X				X			
UNDP		X														
Contracts administration dept.				X												
Environment cluster							X		X							
Rural development cluster									X							
Municipalities						X	X	X	X	X			X			
NGOs and projects																
WWF										X	X					
MOPAWI										X	X					
Pastoral Social Tocoa										X	X					
Asociación Bayán										X	X					
CIDICCO										X	X					
PESA										X	X					
Instituto Velásquez													X			

Regional networks																
MBC												X				
CCAD												X				
National networks																
ANAFAE												X				
RDS-HN												X				
Donors																
ASDI												X	X			
CABIE										X		X	X			
COSUDE												X	X			
DFID												X	X			
EU												X	X			
FIDA										X		X	X			
GTZ										X		X	X			
IABD		X										X	X			
USAID												X	X			
Local stakeholders in pilot areas																
Members of productive groups														X		
Population in general															X	X

Annex M: Context for the mainstreaming of environmental considerations in PRONADEL

The mainstreaming of environmental considerations into PRONADEL is of central importance to the project, given its Overall Objective which is to "validate, demonstrate and disseminate how a rural development project can secure global environmental benefits in a manner compatible with sustainable and equitable development".

1. PRONADEL: General description and operational procedures.

The National Program for Local Development (PRONADEL) originated as the National Fund for Sustainable Rural Development (FONADERS[13]), which operated from July 2000 to June 2001, under IFAD loan agreement 519-HN. In October 2001 it was converted to PRONADEL, with supplementary funding under loan agreement 560-HN, and its area of influence was expanded from the 81 municipalities covered by FONADERS to 138; this involved, in addition to the south and west of the country covered by FONADERS, the addition of the Mosquitia Region in the east of the country. In addition to IFAD, the project is partially funded by CABIE, UNDP and the Government of Honduras. The aim of the project is to promote the equitable access of the rural population to sustainable rural development investments and services, in conglomerates of poor municipalities, in order to improve income levels, food security and the rational management of natural resources.

The project's methodology is based on the support of productive activities identified by local communities, and implemented by productive groups represented at community level by Local Management Structures (EGLs). PRONADEL's Local Institutional Strengthening (FIL) sub-directorate is responsible for overseeing demand appraisal and strengthening the capacities of EGLs. Projects proposals are presented for funding approval by Local Project Approval Committees (CLAPs), and funding is subsequently transferred from PRONADEL's Rural Development Fund (RDF) to EGLs, for disbursement as loans to local productive groups for investment in income generation projects. Technical support is provided by service providers contracted by PRONADEL.

Operational procedures. The operational procedures of PRONADEL are stipulated in the Manual of Operations (MOP), approved in December 2001 in accordance with the conditions of the loan agreements between the Government of Honduras and IFAD (519-HN and 560-HN). Included in the MOP is the Regulation of the Rural Development Fund (RDF).

The MOP includes economic and environmental sustainability as a cross-cutting theme, specifically stating that "the concept is to combat poverty through support to solutions related to production, employment, income generation and the preservation of natural resources".

The operational structure of PRONADEL, as defined in the MOP, is summarized in Annex Q. In relation to the approval for financing of proposals of productive initiatives

[13] Also known as FONADERS-FIDA to distinguish it from the national FONADERS, one of the two executive arms of PRONADERS

by local communities, the MOP stipulates that this is the responsibility of Project Approval Committees: Local Project Approval Committees (CLAP) in the case of projects of up to $25,000, and the central Project Approval Committee in the case of projects of $25-100,000.

Regulations of the Rural Development Fund. The Regulation of the Rural Development Fund, contained within the Manual of Operations of PRONADEL, makes the following stipulations regarding the eligibility of the beneficiary population and productive projects for access to IFAD funding support via the RDF.

1. Characteristics of beneficiary families:

a) Families located on steep or productively marginal lands.
b) With landholdings no greater than 3.5ha.
c) With income below the poverty line.
d) Preferably with a woman as head of the family.

2. Requirements for participation

a) Residence in the target community.
b) Be involved in or have experience in activities related to the proposed project.
c) Be disposed to conform to the agreements of the group or the project for the development of the project with relation to organization, administration, technical assistance and training.
d) Demonstrate interest in forming part of the beneficiary group and carry out activities in support of the development of the community.

3. Types of projects

The RDF finances initiatives whose objectives are food security, natural resource management or productive diversification, and which are sustainable socially, economically and environmentally, including the following:

1. Strengthening and/or transformation of agricultural production and natural resource management systems based on sustainable hillside management technologies;
2. Implementation of agricultural and pasture systems which include measures for soil protection and conservation, natural resource conservation, watershed and water course restoration, reforestation and protection crops;
3. Investments in irrigation, drainage, capture or generation of water for collection use or supply of water;
4. Maintenance of roads, bridges, drainages, justified by increases in production of cost savings;
5. Projects involving the installation of multipurpose agroforestry plots, at family or community level, linked to models for the improvement of the domestic environment and the reduction of pressures on the forest;
6. Productive installations related to commercialization, the transformation of agricultural products and micro-businesses involved in the production of goods and services, handicrafts;

7. Technical cooperation and technology development services, support to commercialization, training, validation of innovative technologies, promotion of organization, strengthening of management capacity, and pre-investment studies permitting finance from other sources.
8. Support to alternative systems of rural finance. With reference to Rural Savings Schemes, these will receive training and advice support through the FIL, and will be co-financed with RDF funds, applying a model of cost sharing with beneficiaries, community investments, technical assistance and training services and small rotating funds.

Recent strategic developments. In May 2002 a RUTA/IFAD/PRONADERS mission analyzed the execution of three IFAD-funded projects, including PRONADEL. This resulted in the following recommendations: a) definition of a strategy for rural capitalization; b) reduction of the project's area of influence; c) improve the process of demand appraisal; d) make more flexible the concept of service provision in order to promote local capacities for their supply and demand; e) design mechanisms for identifying sustainable and economically viable projects; f) review the role of Local Project Approval Committees (CLAP) to improve their effectiveness.

In response to the recommendations of the mission, a joint PRONADERS/PRONADEL team worked on the mechanisms for their implementation, through the production of three instruments: a) a short term action plan for 2002; b) a strategic plan for 2003-2007; c) an annual work plan for 2003, taking into account the elements proposed in the strategic plan. These instruments were produced through a series of intensive workshops in which PDF-B team members participated.

Strategic Plan 2003-2007. The vision defined in the strategic plan is as follows:

> "by the end of its period of execution, PRONADEL will have contributed to income generation, food security, and the rational and sustainable management of the natural resources of the target group in its area of influence through the establishment of an innovative model of sustainable local development, in which participating families will be integrated in an equitable manner into the development of their communities through management capacity generated by consolidated enterprise structures, linked to markets and capable of developing productive initiatives with economic and social impacts".

The strategic objectives are the following: a) strengthen the capacities of local organizations to promote self-management for local development; b) promote local services and finance systems which permit the movement of financial resources under a criterion of capitalization; c) promote coordination, complementarity and capitalization of actions and experiences to increase the efficiency of the promotion of local development; d) promote and strengthen community level processes and spaces which dynamize local economies; e) promote the sustainable management of natural resources in all of the project's actions; f) promote conditions which permit the inclusion of the most poor in the process of local development, using a perspective of differentiated actions; and g) contribute to the development of a local system of technical assistance services which promote the socioeconomic development of the rural population.

The strategies of PRONADEL, identified in the Strategic Plan, are the following:

a) Identification of territorial potential;
b) Organizational strengthening;
c) Capitalization;
d) Production and marketing;
e) Business development.

Cross-cutting strategies identified are:

a) Training;
b) Application of a gender focus;
c) Natural resource management;
d) Promotion of sustainability.

A four-stage intervention strategy is foreseen:

a) *Entry:* Organization of the program's intervention through the focalization of productive processes, communities and families to be attended, and formation of local management structures at community, municipal and regional levels.

b) *Organisational and technical consolidation:* community groups and local management structures consolidate their functions in technical, administrative and legal aspects and commence their financial strengthening to be able to offer credit; strengthening of service providers, and promotion of municipal planning for the execution of actions to link stakeholders to a process of regional development.

c) *Business and financial consolidation phase:* commencement of the transfer of responsibilities to local management structures, strengthening them in their strategic vision and transferring resources for the contracting of services, linkage or creation of "second level" entities which permit them access to conventional and non-conventional sources of finance.

d) *Self-management and efficiency phase:* local management structures now have capacity for self-management and resource administration, fiscal transfers are made and the final handover of the program's responsibilities is formalized.

2. PRONADEL preparedness for mainstreaming

Analysis carried out during the PDF-B phase identified the following weaknesses which affect PRONADEL, and which are of relevance to the implementation of the GEF project:

i) Technicians have limited appreciation of broader issues related to natural resource management, such as differences in the interests of stakeholders at local, national and global level, and little capacity for the evaluation of the environmental implications of productive activities.
ii) Monitoring and evaluation is currently limited to the analysis and quantification of goals and activities, rather than their effects and results. It is not adequate, at the

different directive and operative levels of the PRONADEL, to serve as a tool for improving management, or for ongoing evaluation of results.

iii) The experience of many of the project's technicians is dominated by vertical approaches to rural development, and tends to focus on immediate considerations of production at the expense of long term development and resource sustainability.

iv) PRONADEL technicians, and those of the service providers, continue to face problems with the mastery of participatory methodologies, and with techniques for communication and the production of reports; also there is insufficient capacity to carry out processes of reflection on activities and experiences, which are essential components of systematization.

v) Follow-up to processes of training and technical assistance has been weak. Training sessions have not been followed up or complemented with the necessary technical assistance, and much less have processes of systematization been considered.

However, as described above, there have recently been significant changes in PRONADEL, as an outcome of the RUTA/IFAD review missions and subsequent strategic planning process. Environmental considerations are explicitly taken into account in the documents arising from these strategic planning processes; the 2003 annual workplan stipulates that

"*The natural resource management strategy will be applied in a cross-cutting manner throughout the actions of PRONADEL, based on the ACT, in which will be identified the situation of the resources, the agro-ecological potential of the zone, analysis of priority and vulnerable sites and an inventory of current and potential productive diversity (agricultural and non-agricultural).*

The program will also facilitate municipal planning for development, including an approach of territorial management promoting links between stakeholders. In addition, during 2002 environmental criteria will be designed and applied for the formulation, approval and execution of projects financed by PRONADEL.."

In addition, the four-stage intervention strategy proposed (see Annex M i) includes as part of phase 2 (Organizational and Technical Consolidation) "*institutionalization of the GEF model"*; this represents an entry point for the incorporation of lessons learnt from the GEF project in terms of operational procedures.

Of particular relevance to GEF investment in PRONADEL are the following:

i) ***The focus on a territorial approach.*** This strategy is described as consisting of "identifying territorial potential for the promotion of processes of local economic development considering quality demand appraisal which links local development to processes of municipal and regional development". In contrast to the original approach of PRONADEL of focusing its attention on a few communities within each municipality, selected through a "focalization" process carried out with municipal authorities, the territorial approach creates conditions for the insertion of processes of natural resource management planning, which take into account spatial relationships in terms of impacts and services.

ii) ***Territorial Context Analysis (ACT).*** This "allows the visualization of interactions of social, organizational, economic and productive factors at territorial (in this case

municipal) level". In the two pilot areas, the ACT will provide the basis for the yet more detailed and inclusive process of participatory context analysis on which the watershed planning processes will be based; the experiences in the pilot areas will be used to promote the full consideration of environmental and natural resources considerations in the ACTs elsewhere in the country.

iii) ***Local organizational strengthening.*** It is proposed in the Strategic Plan that this will include the development of the capacities of community bodies (GBs) and EGLs to plan their development and carry out productive investments. Local Governments will also be strengthened through the formulation of Municipal Development Plans. Again, these approaches are highly compatible with the approach proposed by the GEF project, providing opportunities for supporting and advising on these processes and expanding them to a supra-municipal level.

In conclusion, the recent strategic planning processes have provided an excellent opportunity to prepare the ground for the GEF project, and have demonstrated a high degree of interest in, and commitment to, concepts of natural resource management on the part of PRONADEL staff.

Annex M i: Environmental Annex for PRONADEL Manual of Operations

Environmental Considerations and Procedures in the Management of the RDF

1. Productive Projects

The Statement of the UCC, to be included in the community file presented by the communities prior to the approval of any productive project by the Local Project Approval Committee (CLAP), must include an environmental evaluation of the project, using the checklist presented below. The evaluation will be prepared jointly by the UCC, the community group which is formulating the proposal and the Local Management Entity (EGL) to which the group belongs. Previously, the checklist should be used by the community group during the process of formulation of the proposal in order to ensure that it complies with the criteria of the RDF before it is considered by the CLAP.

2. Environmental Projects

Environmental projects will pass through the same process of formulation, revision and approval as productive projects. Support to environmental projects will have the objective of allowing the execution of initiatives which will contribute to the conservation or improvement of natural resources, the environment or biodiversity of public benefit at community, municipal or global level.

Proposals will be considered, for non-returnable funding, for projects with the following characteristics:

1. Contributing to the conservation or improvement of natural resources, the environment or biodiversity of public benefit at community, municipal or global level.
2. Conferring benefits to the public in general, at community, municipal or global level.
3. Having been selected in municipal forums, in order to make the most effective use of the limited funds in benefit of the public in general.
4. Not economically viable in their own right (and therefore not qualifying for support through locally returnable funds).
5. Not representing mitigation measures of specific productive initiatives, as these should be funded by the productive groups in question as part of their operating costs.

Examples of types of projects which may be eligible include the following:

- Reforestation and/or protección of microcatchments providing water to a community as a whole.
- Community waste tips (if these have adequate environmental mitigation facilities).
- Installations or equipment for environmental education or information.
- Protection or signposting of municipal protected areas and/or habitat areas of globally-rare or threatened species.

Examples of types of projects which are not eligible include the following:

- Soil conservation works in agricultural lands managed by individuals or groups.

- Establishment of sources of raw materials for specific productive projects (for example tree plantations to provide fuelwood for a bakery project).
- An ecotourism hostel which is economically viable in its own right.

Environmental Evaluation of Proposals for Productive Projects

This form should be completed jointly by the UCC, the community group which proposes the project and the members of the EGL to which the group belongs. It will be taken into account by the CLAP in its consideration of the project proposal.

General Information

1. Name and location of the Community responsible for the presentation of the Project(s)

_____

2. Name and location of the project (hamlet, village, municipality, department)

_____

3. President of the community organisation:

_____

4. Names of those participating in the evaluation:

UCC: _____

Community group: _____

EGL: _____

5. Brief description of the project (type, objectives, products, inputs etc.):

_____

_____

_____

_____

_____

_____

_____

_____

Checklist for environmental evaluation

	Si		No		Especifique
1. Are there resource management plans in the area of the project, agreed upon by the diverse local stakeholders?		Go to question 2		Go to question 3	
2. Does the project conform to those plans?		Go to question 3		Reject	
3. Is the project located in a protected area?		Go to question 4.		Go to question 3	Which
4. Is the project in accordance with the management norms of the protected area?		Go to question 5		Reject	
5. Does the project include timber management or harvesting?		Go to question 6		Go to question 7	
6. Does the project area have a forest management plan approved by AFE-COHDEFOR?		Go to question 7		Reject	
7. Does the project involve the use or extraction of non-timber forest products or fishing?		Go to question 8		Go to question 10	Of what type?
8. Has it been proven that the resource has sufficient regenerative capacity to compensate for the extraction?		Go to question 10		Go to question 9	
9. Will sources of raw materials be established?		Go to question 10		Reject	Of what type?
10. Does the project involve the removal of vegetation at less than X m from water courses?		Reject		Go to question 11	
11. Does the project involve the use of agrochemicals?		Go to question 11		Go to question 14	Which?
12. Will chemicals prohibited by the SENASA be used (see the "Black List" attached)		Reject		Go to question 13	Which?
13. Will harmful chemicals[i] be applied at a distance of less than X m from water courses?		Reject		Go to question 14	
14. Will the project generate potentially polluting wastes or emissions (liquid, solid or gaseous)?		Go to question 15		Go to question 16	Of what type?
15. Will the wastes or emissions be prevented from contaminating water sources or generating smells, pests or other health risks[ii]?		Go to question 16		Reject	By what means?
16. Will the project use water for uses other than human consumption?		Go to question 17		Go to question 18	For what use?
17. Does the project have a municipal permit for water use?		Go to question 18		Reject	
18. Is the project agricultural?		Go to question 19		Go to question 20	Of what type?
19. Will adequate measures be taken to limit cross-surface runoff, promote water infiltration and avoid soil erosion[iii]?		Go to question 20		Reject	Which?
20. Will the project involve the introduction of new species to the area?		Go to question 21		Go to question 24	Which?
21. Is the project located in an area of high environmental sensitivity[iv]?		Go to question 22		Go to question 23	Of what type?

22. Has a technical study been carried out which shows that the species introduced do not present a risk of weediness or modification of natural ecosystems?		Go to question 24		Reject	
23. Are the species on the list of prohibited species[v]?		Reject		Go to question 24	
24. Is the project in an area of high environmental sensitivity?		Go to question 25		**Approve**	Of what type?
25. Does the project have the approval of the municipal authorities of the area in which it will be implemented?		Go to question 26		Reject	If not, why not?
26. Does the project risk generating significant environmental risks?[vi]		Referirse al CAP		Go to question 27	Why?
27. Does the project involve the removal of areas of forest or the destruction of other types of natural ecosystem?		Referirse al CAP		Go to question 28	
28. Does the project involve the establishment of extensive areas of monoculture?		Referirse al CAP		Go to question 29	Of what type?
29. Does the project involve irrigation in an area affected by water scarcity?		Go to question 30		**Approve**	
30. Will adequate practices be applies for the conservation of water and the promotion of its infiltration?		Go to question 31		Reject	
31. Will water-conserving irrigation practices be applied?		**Approve**		Reject	

[i] See definition in annex
[ii] See manual for practical details on waste management
[iii] See manual for practical details on soil and water conservation measures
[iv] See annex for definition; these include agricultural frontier areas, areas of environmental/productive crisis, and areas with globally important and/or vulnerable biodiversity.
[v] See annex for list of prohibited species.
[vi] Any project which:

1. Requires the building of roads (even if this is not carried out with direct support from PRONADEL), or the removal or significant alteration of natural ecosystems.
2. Is located within the limits of a protected area.
3. Is considered by the local technical staff of PRONADEL or local stakeholders as being of high environmental risk, due to its nature and/or scale.

Annex N: Planning, monitoring, evaluation and systematization plan

The Monitoring and Evaluation system of the GEF project will be closely integrated with that of PRONADEL. Given the nature and objectives of the project, particularly the central importance of the integrated ecosystem and watershed planning (IEWM), the M&E system will include a planning component; it will also include a systematization component, given the importance of the replication of lessons learnt to the demonstration/promotion aspects of the project. The result will be a Planning, Monitoring, Evaluation and Systematization (PMES) system.

A number of changes will be made to the existing PMES system of PRONADEL:

1. Objectives of PRONADEL PMES system. The following objectives will be added to the existing PMES system of PRONADEL:

- Analysis of the effectiveness of the implementation of natural resource (including watershed) management plans, both in the pilot areas and in the rest of PRONADEL's area of influence.
- Evaluation the effects and impacts on local communities and global environmental values (biodiversity, carbon, land and water) of PRONADEL's actions, especially projects supported by the RDF.
- Develop local capacities for participatory, democratic and inclusive processes of monitoring and evaluation of environmental impacts of PRONADEL's activities, especially projects supported by the RDF.
- Develop local capacities for collective systematization of experiences regarding the inclusion of considerations of global environmental values into rural development projects.
- Generate and disseminate lessons on IEWM, participatory environmental impact evaluation and the inclusion of considerations of global environmental values into rural development projects.

2. Strategic guidelines. The PMES system will be integrated and inclusive in nature, allowing the management and use of both qualitative and quantitative information, as well as the participation of diverse stakeholders, explicitly including local inhabitants in the management and use of the information generated. It will

Given the characteristics of the project and the Program with which it will be linked (PRONADEL), the PMES system will be decentralized, yet linked to that of PRONADEL in order for it to recognize the specific and different characteristics of the two pilot areas and the functional structure of PRONADEL, as well as the Information, Planning, Monitoring and Evaluation System (SIPSE) of PRONADERS (the system will be linked to the Categories and Variables already defined for the SIPSE).

Thus the functioning of the PMES system at different levels of interest and responsibility will not only facilitate its relation to the particular characteristics of the pilot areas and the decentralized functioning of PRONADEL and DINADERS, but will also guarantee and facilitate the incorporation and synergy of environmental interests which are also differentiated in nature (global, national and local); and the generation of local capacities

for the collection, processing, analysis and use of information for decision-making in aspects related to the conservation of ecosystems and natural resources in a compatible manner with productive economic interests. The integration of the system with that of PRONADEL will also help to meet the objective of the project to demonstrate how to secure environmental benefits by working through a rural development project.

The PMES system will also have a communicative approach, i.e. it will determine from the start the information needs of the different stakeholders involved or interested, as well as the form in which this information will be communicated to each of them and to the public in general.

In summary, the PMES system will be simple and practical, allowing its use by communities for the generation of local capacities, the measurement of intangible aspects and the supply of opportune and reliable information for decision-making at the different levels of responsibility and decision both within the project and PRONADEL.

3. Planning Subsystem. It is envisaged that the planning processes contemplated in PRONADEL will be carried out at local level (with producer organizations and groups and service providers) and national level, such that information will be available on planning processes from the base to the Project Implementation Unit which will allow responses to community demands based on strategic guidelines derived from PRONADEL's logframe and national level policy (emitted by DINADERS).

The GEF project will therefore require the explicit incorporation of environmental aspects and considerations of global, national and local significance into the various planning processes and mechanisms applied by PRONADEL, especially in the pilot areas. This is a key aspect, given that planning is a fundamental reference point for processes of monitoring, evaluation and systematization.

It is therefore important to include more explicitly, in the processes of participatory rural appraisal carried out in local communities, the analysis of environmental and biophysical aspects, especially the identification of their current status and the valuation of natural resources, species and ecosystems by local inhabitants, as well as the identification of resources, species and ecosystems considered to be of local value: their status, use and potential.

It is also essential to identify in the Community Development Plans actions necessary for the protection, conservation and/or restoration of the natural resources, species and ecosystems analysed, as well as the definition of responsibilities and resources.

In the process of formulation of projects for presentation for funding through PRONADEL, it is essential that possible negative effects and impacts are identified and a corresponding mitigation plan developed, as well as mechanisms for monitoring and evaluation, both of the project and the mitigation plan.

Taking into account the nature of the GEF project, which will require the handling of both quantitative and qualitative information, after project startup scales will be participatively formulated for the mixed indicators included in the logframe. These mixed indicators will be included in PRONADEL's logframe and are also used in the SIPSE of PRONADERS; their use here will therefore facilitate linkages between this project, PRONADEL and PRONADERS.

The above will require, as initial activities of the project, the development of methodologies (practices and instruments) for the implementation of these processes, and training events, for PIU personnel, service providers, members of CLAPs and the CAP and local organizations and groups from the two pilot areas.

During the implementation phase it will also be necessary to provide periodic follow-up support and technical advice for specific cases. This follow-up support will not only assure the inclusion of the environmental aspects considered in the project, but also the systematization of planning processes with the idea of obtaining lessons and methodological guidelines on the incorporation of global and national environmental interests in rural development projects.

4. Monitoring Subsystem. As with the Planning Subsystem, it is important to integrate the specific aspects of the GEF project into PRONADEL's Monitoring Subsystem, especially with regard to the monitoring of the project's own activities, as well as of the mitigation of the environmental effects and impacts of projects supported through the RDF. As a result of the participatory approach of the project's PMES system, in accordance with the PMES system of PRONADEL, individual level self-monitoring will be carried out, complemented by institutional monitoring at the different levels of implementation of the project.

It will therefore be necessary, at the beginning of the project, to define and implement the adjustments required in the monitoring procedures and instruments of PRONADEL's PMES system, and train the organizations and groups who are carrying out projects supported by the program to enable them to apply activities of self-evaluation of the projects they are implementing (especially those supported through the RDF) and the fulfillment of the mitigation plans. This will imply training and follow-up support provided by the GEF project, both to the members of community level groups and organizations, and to the service providers who work with them, in the production of instruments which allow them to collect and analyze information and use it in decision making resulting in improved project performance and environmental impact.

Additionally, it will be necessary to review the regulations and criteria for project approval by the CLAPs in each pilot area and the CAP. This activity will be responsibility of the GEF project and will be carried out at its start. The mechanisms and instruments for monitoring used by the CLAP will also be refined in order to include tools for monitoring of the environmental mitigation plans of the projects and their effects and impacts.

During the implementation of the project, there will be follow-up support to the application of the regulations, mechanisms and instruments designed for monitoring, and also monitoring of the activities of the project itself. This will include periodic monitoring of the assumptions presented in the project's logframe and of changes in the project's context, specifically environmental aspects of the context of institutions, legislation and public policy.

The monitoring information which local organizations and community level groups report, as well as that reported by CLAPs and service providers, will be participatively consolidated at conglomerate level, to allow decision making regarding adjustments to the programming of activities at that level, and analyzed at national level by the GEF

project team together with the PIU, to permit decisions to be taken regarding adjustments in procedures, criteria and/or the programming of activities at general level. This will require the review, at the beginning of the project, of the different formats of monitoring reports which PRONADEL has been using.

The information analyzed and reported in the Monitoring Subsystem will be used in the processes of continuous evaluation, as described in the following section.

5. Evaluation Subsystem. The Evaluation subsystem of PRONADEL should integrate, in all of the evaluation activities carried out at different levels of implementation, the environmental criteria and indicators contained in the logframes of the GEF project. The guidelines for this will be defined collectively at the outset of the project.

Additionally, feedback mechanisms will be incorporated which will allow analyses of indicators of global and national interest to be applied at lower levels, to permit the generation there of interest in and capacity for their collection and analysis.

As mentioned with reference to the Planning Subsystem, the definition of environmental indicators to be integrated in each of the levels of implementation of PRONADEL should be carried out participatively, linking the stakeholders involved and/or interested according to the level of implementation. For example, the indicators integrated into projects supported through the RDF will be formulated with the participation of the organizations and groups which will execute them, the service providers and local level functionaries of the PRONADEL and the project.

The definition of methods and the elaboration of instruments for the collection and analysis of information will also be carried out participatively. This will ensure not only the reliability of the information, but also the negotiation of environmental and economic/productive interests between the stakeholders, and will facilitate the incorporation of environmental criteria in all levels of execution of the project.

The above is important considering the participatory nature of the project, which implies actions of self-evaluation complemented with actions of internal institutional evaluation at each level of implementation, and with external evaluations carried out at the initiative both of the project itself and PRONADEL, and the institutions which finance the project and/or government entities.

To achieve the above, it is necessary to train all of the stakeholders involved and especially the organizations and groups carrying out projects supported by PRONADEL, in order for them to be able to apply self-evaluation activities of the environmental effects and impacts of the projects which they carry out, the satisfaction of the mitigation plans and participation in collective institutional analyses of these effects and impacts at broader levels. This implies that at each level of execution of the programme and project, the different actors involved will have the capacity to collect, process, analyze, use and report information in the aspects indicated.

For consolidated analysis at pilot area and national level, secondary information from other institutions and/or projects of an environmental nature will also be used.

Information on the indicators of the effects and impacts of the project (together with information on the respective indicators of PRONADEL) will be reported to DINADERS for its incorporation in the SIPSE of PRONADERS; to this end, the variables and

categories of the PRONADERS SIPSE system, to which each of this project's indicators will contribute, will be defined (this procedure is already being applied to the information reported by projects linked to PRONADERS). It is recommended that personnel of the GEF project carry out a "critical reading" of the variables and categories of PRONADERS with the aim of verifying the cross-cutting incorporation of the environmental criteria of interest to the project.

Another important element will be, on the basis of the environmental aspects defined in the project and the lessons learnt during its implementation, the establishment of criteria and procedures for the evaluation of the quality of the services of local "service providers" contracted by community level organizations, as part of PRONADEL's policy of privatization and decentralization. This is particularly important given that, through well trained service providers, committed to the objectives of the GEF project, it will be able to achieve more successful replication of the results and lessons learnt among organizations and producer groups not directly linked to PRONADEL, but which may require attention by these service providers both in the pilot areas and elsewhere in the country.

The PRONADEL baseline study will include the aspects, criteria and indicators contained in the logframe of the GEF project, for analysis of the "without project" situation, which will serve as reference for the evaluation of the specific environmental, social and institutional effects and impacts of the project. With the information that results from these evaluation processes it will be possible to base the demonstration and validation of the IEWM "model".

Based on the above, the baseline study will identify, in each of the pilot areas, the existing institutional capacities for the application of the model, with the objective of detecting gaps and weaknesses which would be addressed through the specific training activities of the project. The study will also identify the environmental indicators of interest to each of the stakeholder groups, actors capable of taking on the task of internal and external evaluation of environmental effects and impacts, especially with regard to the collection and analysis of information relevant to the project, and complementary sources of environmental information.

The baseline study will permit the identification of research and academic institutions (at technological and university level) with curricula related to the objectives of the project, their interest and capacity to participate in processes of evaluation of environmental effects and impacts and/or the systematization of project experiences , and/or their interest and capacity for the replication of lessons learnt in the implementation of the project.

6. Systematization Subsystem. The incorporation of the Systematization Subsystem as an integral part of the PMES system of the GEF project (as it is in the PMES system of PRONADEL), with a participatory approach, implies the systematization of the experiences generated during the implementation of the project (i.e. systematization should not be left until the end of the project). As such, it implies the definition and agreement, from the start of the project, of the aspects which it is intended to systematize, the most appropriate moments for doing so, the participants and procedures, as well as the products and mechanisms considered most adequate for the dissemination of the

knowledge and lessons learnt. Once these aspects have been defined, the activities and budgets required will be included in the annual plans of operations.

Although a number of methodologies exist for the systematization of development processes, that applied here will be the "action systematization" of local experiences of rural and agricultural development developed by the regional IFAD programs FIDAMERICA and PREVAL. This methodology has been tried and applied by the majority of IFAD projects in Latin America, with the participation of project technical teams, co-executing entities and members of the organizations and producer groups with which these projects work.

Based on the objectives of the project, emphasis in the lessons learnt will be placed on finding answers to the following questions:

i) How can components of IEWM be integrated into development projects? Is it possible to establish ecological corridors through productive projects?

ii) How can global environmental interests be made compatible with those at national and local levels?

iii) How can the conservation of natural resources be made compatible with the objectives of development? What factors affect (positively or negatively) the incorporation of conservation objectives into rural development programs based on micro-finance? Does the development of productive activities in buffer zones and their surrounds allow the reduction of the degradation of adjoining protected areas?

Given that the direct participation of stakeholders in the processes of information generation (collection, processing and analysis) allows replication, it is fundamental that the systematization carried out as part of the GEF project will have a participatory and inclusive focus, which will allow the linking of the entities, institutions and organizations, especially local and national, considered most appropriate. In this regard, it is essential that these systematization processes be linked to DINADERS and SERNA. Additionally, links will be developed where possible with other development and environmental projects, especially those linked to PRONADERS and the Mesoamerican Biological Corridor (MBC), given that the MBC will be one of the key entities for the dissemination and replication of lessons learnt in the project.

Annex O: Plan for the Facilitation of Watershed and Natural Resource Planning Processes

In pursuance of Specific Objective 1 (Protection of global biodiversity, carbon, land and water conservation benefits working in conjunction with local PRONADEL operations in 2 pilot areas) the project will support planning activities in both of the pilot areas, contributing to the production of Output 1.1 (PRONADEL applying participatory processes of IEWM and planning in two pilot areas).

These processes will be coordinated and compatible with, and expand upon, the methodological process applied by PRONADEL in its target municipalities. The results of the processes described below will be linked to the activities of PRONADEL by means of the project approval process, in which members of local authorities represented in the Local Project Approval Committees (CLAPs) will ensure that the projects proposed for PRONADEL support conform to the zone-specific environmental criteria defined in the plans, and contribute in general to their aims.

The success of the plans proposed depends on the conviction on the part of diverse local stakeholders of the value of adopting long term planning horizons at a more than local level. This conviction will be ensured by the project's investment, through workshops, in raising environmental awareness among municipal authorities and other stakeholders; and by the process of reflection involved in the participatory context analyses proposed below.

It must be emphasized that the project's activities in the area of planning aim to complement, rather than duplicate or contradict, existing planning frameworks. This is especially relevant in the case of Sico-Paulaya, where the GTZ/AFE-COHDEFOR Río Plátano Biosphere Reserve Project has been carrying out participatory processes of planning for a number of years within the boundaries of the Biosphere Reserve. Here the project's focus will be on extending the planning context to the valley of a whole (half of which lies outside of the RPBR); communities will be prepared for this process through an initial phase of participatory context analysis (which will build upon the analyses carried out during the PDF-B phase).

The principal steps in the project's investment in facilitating watershed and natural resource planning are as follows:

1. Participatory context analysis and facilitation of conservation and development processes

In the pilot areas, this will expand on PRONADEL's context analysis process (which in itself is an expansion, proposed during strategic planning workshops of September 2002, of standardized appraisal exercises carried out to date). The principal mechanism for the context analysis will be participatory workshops, at community level, facilitated by team members; the identification of the precise sectors and geographical units at which the process will operate will be a product of the initial phases of the process itself. The emphasis of the process will be on true participation, whereby the workshops serve to generate, through reflection, information of use to the communities themselves. It will also be inclusive, avoiding reinforcing the already dominant role of certain community members and sectors and promoting the participation others, traditionally marginalized.

Stages in this process will be:

i) Design and agreement between the GEF team and PRONADEL of criteria and mechanisms for the implementation of the facilitation process.

ii) Formation of a small national coordination team and regional facilitation teams, one for each pilot area.

iii) Induction, training and general fine-tuning of the facilitation teams.

iv) Preparation of detailed work plans, taking into account differences between the two pilot areas.

v) Identification and communication with stakeholders for the implementation of the facilitation process, which will take into account environmental, social and economic factors (in that order of importance) and be a two-way process between community, municipality, agro-ecological zones and catchment levels and vice versa.

vi) Once identified the geographical units within each pilot area for the commencement of the facilitation process, local leaders will be convened, placing emphasis on the participation of traditionally marginalized sectors.

vii) Training workshops among leaders, taking advantage of the opportunity for initial participatory information gathering, differentiated by sectors, zones and municipalities within the catchment.

viii) Planning of successive processes of community-level information gathering, differentiated by sectors.

ix) Consolidation and revision of data, and review of methodological processes at local level.

x) Initial processing of data by the national level coordination team, so that when pilot area level fieldwork is concluded results are available in a sufficiently processed format to permit the preparation of consolidation and analysis activities at broader geographical level (e.g. catchment).

xi) Socialization of results at different levels, in preparation for the facilitation of local planning processes at different levels.

xii) Review and evaluation of any processes of articulation, between communities or stakeholder sectors, which may have arisen during the initial context analysis process up to this point and consideration of actions in support of their future development and consolidation.

xiii) Participatory evaluation of processes, results and products.

The results of the above process will constitute the principal input for the structuring of a second phase of activities negotiated among the different stakeholders, aimed at achieving greater levels of informed participation, with increased efficiency and coherence.

2. Support of the incorporation of environmental considerations into Municipal Development Plans

PRONADEL, in its Annual Plan of Operations for 2003, proposes to facilitate the preparation of Municipal Development Plans in all of the municipalities in its area of influence. In the pilot areas, this will take place in parallel with the participatory context analyses described above. This

project will assist in the incorporation of environmental and natural resource considerations into these plans, in the following ways:

i) Making available to municipal authorities the baseline information collected during the PDF-B phase, in formats which maximize their utility for plan preparation and as an information resource of use in the long term. These formats will include printed documents and manuals, and, in selected municipalities and the inter-institutional information centre in Sico (which will be co-managed and co-accessed by municipal authorities), electronic map files to permit GIS analysis.

ii) The provision of technical support in the interpretation and application of the information made available.

iii) The provision of advice, including the facilitation of meetings and workshops, on the zoning of municipal territory on the basis of environmental considerations, the definition of environmental criteria for development activities and the identification of municipal projects to promote global and local environmental benefits.

3. Facilitation of the formulation and application of supra-municipal plans.

In parallel with the process of municipal development plan preparation, the project will facilitate the preparation of plans at broader levels, centred on the two pilot areas. Discussions with municipal governments and other stakeholders during the PDF-B phase have confirmed the need for and interest in supra-municipal planning. The confirmation of the content and format of such plans will be an outcome of the context analysis and municipal level planning processes described above, but their formulation will not wait for those processes to be finalized. The stages in the formulation of such plans will be the following:

i) Participatory reflection, during the context analysis and municipal planning processes, of relations between municipalities in terms of impacts, dependences and opportunities.

ii) Participatory definition of needs, scope and objectives of plans at a supra-municipal level, and their geographical boundaries.

iii) Formation of organizational and institutional structures for the formulation and implementation of plans. These will be based on the concept of *mancomunidades* (associations of municipalities), with which successful experiences already exist in Honduras. In operational terms, for each theme the *mancomunidad* will take the form of a supra-municipal committee formed of representatives of each of the participating municipalities (including local government, civil society organizations, producer organizations and institutions or projects). The representation and participation rights of these stakeholders will be governed by statutes, on whose preparation the project will advise where necessary.

Priority themes for supra-municipal planning will be the following:

- **Water resource management**, in the Texíguat watershed.

  The objective of this planning will be to *maximize the efficiency and equity of the management and use of limited water resources at a watershed level, in order to ensure*

its continued availability for productive use and consumption by all of the area's population.

During the PDF-B phase, the principal threats (actual and potential) to water resources in the watershed have been identified as:

- inappropriate land and vegetation management (the maintenance of inadequate vegetation cover in farming systems and the degradation and clearance of forests), resulting in impeded infiltration and accelerated evaporation;
- excessive and inefficient use of water for irrigation.

The river network in the catchment has been characterized during the PDF-B phase, as have the principal forms of water use and the main sources of supply. In the smaller communities and scattered dwellings, water is largely obtained from wells and small water sources and carried to the house; larger communities have piped water systems, relying on mains running from water sources typically at up to 5km distance from the community (depending on local recharge within micro-watersheds); irrigation, which is limited in scale and chiefly restricted to the narrow flood plains alongside the principal rivers, depends on the extraction of river water (whose supply depends principally on recharge from the upper parts of the watershed), with little provision for storage or efficiency of use.

Analysis during the PDF-B phase suggests that options exist for using tariff and other payment schemes to promote sound water management at a watershed level, but that these are constrained by the limited scale of downstream populations with access to irrigable land from which to generate such tariffs, the dispersed nature of the upstream resource managers and the limited capacity of municipal authorities to administer payments and monitor compliance among such dispersed populations.

The project's support in this theme will include:

i) *Hydrological analyses* including river flow studies (based as far as possible on data from existing river flow gauges in the Texíguat catchment and elsewhere in the Choluteca catchment), identification of aquifers and recharge zones, and studies of infiltration patterns under different conditions;

ii) *Detailed water demand studies* among different types of consumer;

iii) *Facilitation of participatory zoning* to define areas requiring special treatment as aquifer recharge zones (based on the results of the hydrological analyses), and areas of particular scarcity requiring the application of special measures to ensure the efficient management of water resources;

iv) *Definition of environmental criteria and management strategies by zone*. General criteria have been negotiated within PRONADEL at a whole catchment level; the detailed negotiation with local inhabitants of zone-specific criteria and strategies will be a product of the participatory context analysis processes described above.

v) *Facilitation of negotiations* between stakeholders at different levels of the catchment regarding the distribution of the water resource and mechanisms for its regulation;

vi) *Advice on the application of schemes for the internalization of environmental services*, including tariffs for water consumption, municipal and intermunicipal structures for the collection and administration of funds collected, and the definition, implementation and monitoring of "hydrologically friendly" projects funded under the schemes.

- **Ecotourism planning**, in both Texíguat and Sico-Paulaya pilot areas (in the former case, covering the entirety of selected municipalities in the upper part of the catchment near to Tegucigalpa and in the latter, the Sico-Paulaya valley and the coastal Garífuna communities).

  The objective of this planning will be to *promote the realization of the potential of the areas' biological, landscape, archaeological and cultural resources to generate income through ecotourism in a sustainable and equitable manner, which will at the same time motivate local stakeholders to protect those resources.*

  The planning and development of tourism will be carried out within the context of the national and regional development plans of the Honduran Institute of Tourism. Planning beyond the local level is necessary to ensure that tourists are guaranteed a chain of attractions to lead them to the areas, in accordance with the concept of "tourism corridors" promoted by the IHT.

  The principal stages in this process will be the following:

  i) Participatory evaluation and characterization of the tourism resource, building on the initial characterization carried out during the PDF-B phase, including landscape, cultural and ethnic, biological and archeological values.

  ii) Detailed zoning of the planning area, on the basis of attractiveness, vulnerability, carrying capacity and the development priorities of local inhabitants.

  iii) Definition of a visitor development plan specifying annual and average daily visitor intensities for the different zones, taking into account carrying capacities and the rate of infrastructure and accommodation development

  iv) Definition of visitor routes to and within the area.

  v) Development of infrastructural, accommodation and human resource capacity, in accordance with the visitor development plan.

- **Forest resource management** in the Sico-Paulaya pilot area. The objective of this planning will be to *promote the sustainable and equitable management of the area's forest resources as a means of generating income and at the same time increasing local inhabitants' motivation to protect them against degradation or conversion to other land uses.*

  The emphasis of this planning will be to ensure that forest use does not exceed the resource's biological carrying capacity or local regulatory capacity, or lead indirectly to increased pressures on areas outside of the management units.

  i) *Synthesis of the information available* on forest resources, collected during the PDF-B phase (including inventory data for the Copén and Paya forest management units and diagnoses of timber harvesting and trade patterns, such as del Gatto, 2002).

ii) *Characterization of routes of timber transport and trade.*

iii) *Zoning of the area for forestry management* according to the productivity, environmental vulnerability and tenure of its forest resources.

iv) *Definition of medium and long term levels of cut by 5 or 10 year period over the whole planning area,* on the basis of the results of the resource analysis and zoning, in order to ensure sustained yield (taking into account expected levels of illegal harvesting).

v) *Formulation of a strategy for the effective regulation of timber harvesting* and a programme for the development of regulatory capacity, including the identification of sources of financing and technical support.

vi) *Definition of processing and marketing strategies* for the area, including analysis of national and international (including certified) marketing options, needs for marketing support and a strategy for their satisfaction, and plans for local processing centres and infrastructural development.

vii) *Formation and strengthening of community organizations and cooperatives* for the implementation of community forestry management activities.

- **Tree and forest resource management** in the Texíguat Pilot Area. As in the case of Sico-Paulaya, the objective of this planning will be to *promote the sustainable and equitable management of the area's forest resources as a means of generating income and at the same time increasing local inhabitants' motivation to protect them against degradation or conversion to other land uses.*

  The emphasis of this planning will also be to ensure that the promotion of tree use does not exceed the institutional and local capacity for its regulation, and is accompanied by adequate measures to ensure the regeneration of the resource.

  i) *Mapping, characterization and quantification of the area's tree and forest resources*, including dispersed trees in agroecosystems. This will build upon the mapping of vegetation and agroecological zones carried out during the PDF-B phase.

  ii) *Analysis of productive potential of tree and forest resources*, taking into account timber as well as non-timber products and services (e.g. hydrological and soil effects).

  iii) *Development of regulatory capacity for tree management and use.*

  iv) *Lobbying to promote the formation of a favourable regulatory environment* for the sustainable management and use of tree resources in small forest areas and agroecosystems.

  v) *Identification and definition of processing and marketing strategies* for timber and other tree products, taking into account the need for sustainability.

- **Sustainable and organic agriculture** in for the Texíguat catchment. The objective of this planning will be to *facilitate the application of agricultural practices appropriate to the biophysical and socioeconomic conditions of the area, in order to promote the sustainability of local livelihoods, demographic stability and the resilience of the area's ecosystems and agroecosystems, and reduce impacts on global and local environmental values.*

This planning will focus on the coordination of the provision of technical assistance between projects and institutions, in order to avoid contradictions and maximize the opportunities for participatory learning.

The principal element of this planning will be the following:

i) *Facilitation of inter-institutional reflection* on experiences with different agricultural technologies promoted to date.

ii) *Facilitation of reflections among local stakeholders* on their experiences with different technologies to date, and their relations with institutions working in the area.

iii) *Negotiation between institutional stakeholders present in the area*, regarding their respective geographical spheres of action, "messages" and technologies to be promoted, and technology transfer methods (on the basis of the above reflections).

iv) *Planning of joint actions and shared responsibilities* between different institutions and their respective beneficiary populations regarding the introduction, generation and evaluation of technologies, including interchanges and participatory action research.

Annex P: Plan for dissemination of lessons learnt

The effective dissemination of lessons learnt is of crucial importance to the satisfaction by the project of its overall demonstration objective. The project will aim this dissemination at a number of different audiences, for which distinct disseminations strategies will be applied. The strategies to be applied for dissemination to different audiences are summarized in the flow diagram at the end of this Annex.

Strategies:

1. **Seminars, workshops and forums.** Throughout its duration, issues related to the theme of the project will be discussed in meetings using a variety of methodologies. These will assume particular importance towards the end of the project as the accumulated body of lessons learnt increases in size; however these opportunities will be used not only for dissemination but for feedback and learning on the part of the project itself and will therefore be of value at early stages as well.

   Issues, related to global environmental values and integrated watershed management, to be discussed in these forums will include the following:

   - financial and other mechanisms for internalizing externalities related to the conservation of global and regional values
   - the incorporation of environmental and global environmental values into the monitoring and evaluation systems of development projects
   - environmental services
   - territorial (including watershed) approaches to the planning of rural development and conservation
   - incorporating social and rural development considerations into protected areas planning.

   These forums will include presentations of national and regional project experiences and presentations by invited speakers from academia and funding institutions. They will be aimed at high level project staff and policy formulators.

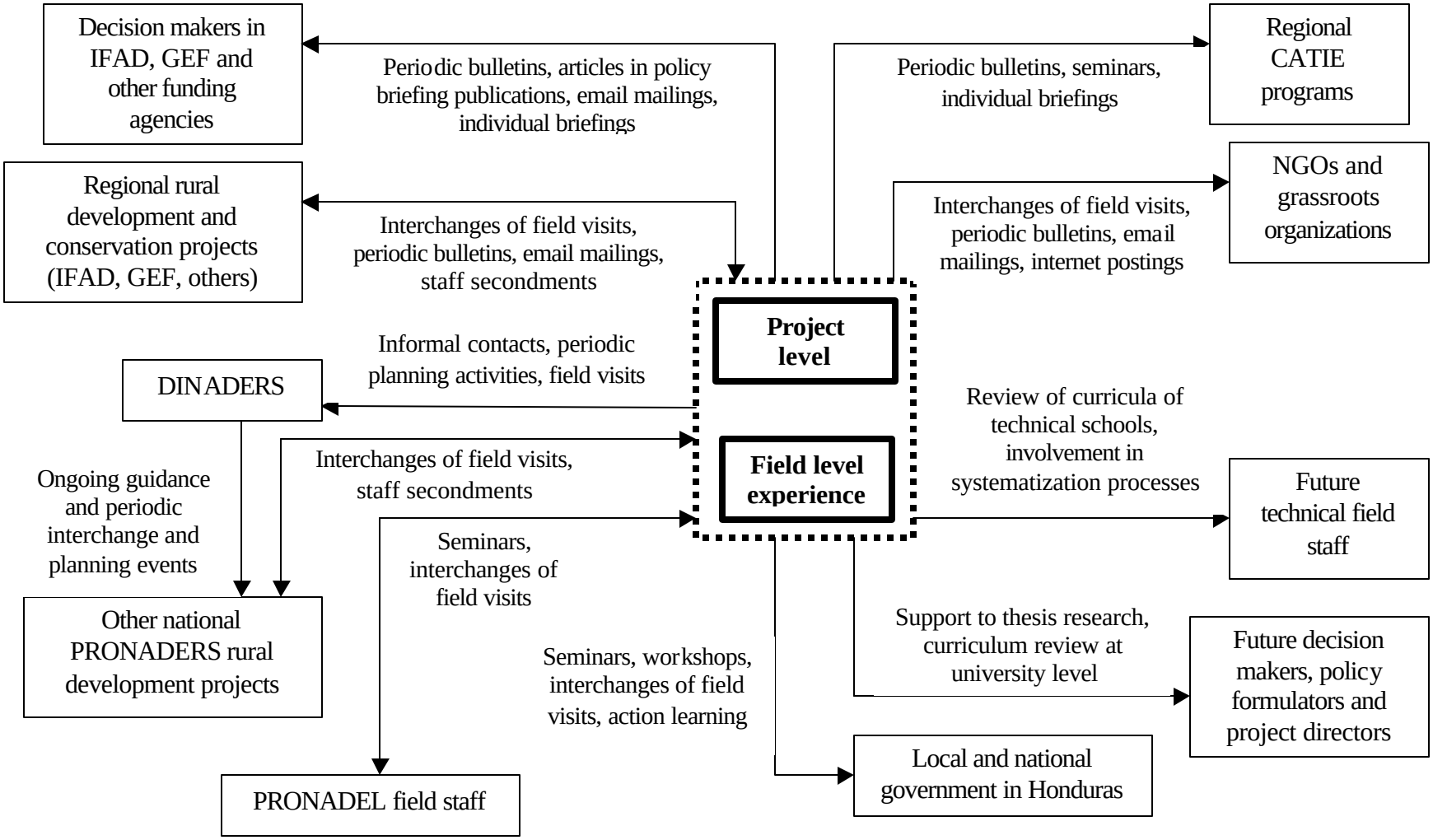
2. **Interchanges of field visits.** Staff of projects, institutions and local authorities will be invited to visit the pilot areas to witness and discuss project activities, both with project staff and with local stakeholders. Again, this will be a two-way process, with visits by GEF project staff to other areas in order to expose them to experiences and ideas which may enrich the project.

3. **Staff secondments.** Related to the above, members of projects, institutions and local authorities will be invited to participate in secondments in the pilot areas in order to expose them at first hand to the project experiences.

4. **Informal contacts and one-on-one meetings.** Given that there will be members of the GEF project based in DINADERS, much can be achieved in disseminating lessons by individual meetings with key DINADERS staff, both “in the corridor” and in regular planning and discussion meetings.

5. **Brochures and training materials.** These materials (including audiovisual) will be prepared for different audiences, including farmers, technical schools and universities and others, based on the information generated by the systematization processes of the project. The regional IFAD program for training and technical assistance, SETEDER, will be an important ally in this respect.
6. **Email mailings.** The project will establish an email distribution list for messages and articles related to its core themes. It will also make postings through existing lists.
7. **Internet postings.** Information and articles related to the project will be posted on regional and national sites as www.mesoamerica.org and the Honduran Sustainable Development Network page.
8. **Thesis research.** The project will promote opportunities for thesis research at both graduate and post-graduate levels, formalized through agreements with national and overseas universities which offer courses related to the objectives of the project; and for diploma studies based on the lessons learnt in the project.
9. **Curriculum review.** In collaboration with CATIE, support will be provided to curriculum review and/or the training of lecturers at agricultural technical schools. The above will be formalized within a framework agreement established with CATIE.
10. **Incorporation into CATIE regional programs.** The regional university CATIE has expressed interest in promoting the dissemination of lessons learnt in this project either through its direct activities (e.g. its regional Integrated Pest Management program) and/or through Honduran universities with which it has existing contacts or relations, in conformity with its decentralization policy.
11. **Linkages of national entities, research and academic institutions and projects to the processes of systematization of experiences to be applied in the pilot areas.** This will provide improved opportunities for judging the success of the project, in comparison with other experiences which vary from this project in their objectives and/or their implementation areas; and at the same time, will increase the dissemination of lessons learnt among other producers and audiences linked to these entities, institutions and projects. At the outset of the project, contact will therefore be made with these entities, institutions and projects identified in the baseline study to establish specific agreements aimed at linking them to the project at points in the systematization processes considered appropriate.

Summary of dissemination strategies and target audience



Annex Q: Implementation Arrangements

Duration

The duration of the project will be 6 years (mid 2003 – mid 2009). The first 5 years will overlap with the implementation of the National Programme for Local Development (PRONADEL), which will be a key local counterpart to the project and which will close formally in mid 2008 (although field operations will begin winding down significantly before that date). The project will have 3 main phases:

Years 1-2. Emphasis on strengthening PRONADEL and executing activities in the pilot areas.
Years 3-4. Continued strengthening of PRONADEL and activities in the pilot areas, plus the dissemination of lessons learnt and the provision of environmental guidance to DINADERS and other institutions on the basis of experiences in the pilot areas.
Years 5-6. Emphasis on developing and implementing an exit strategy in order to ensure the sustainability of project activities.

Internal Project Structure

Project Implementation Unit (PIU). The PIU will consist of the National Project Director (the Vice-Minister of the SAG), the Project Coordinator and support staff. During the first two years of the project the Project Coordinator and support staff will be based in the offices of PRONADEL; their location during the final four years will be decided on the basis of the results of the first intermediate project review mission at the end of year 2, the options being i) that they remain in PRONADEL, ii) relocation to DINADERS (possibly as a part of the Process Improvement component of PRONADEL in DINADERS) or iii) relocation to the SAG.

PRONADEL-based staff. An environmental adviser will be based in the head offices of PRONADEL for the first four years of the project and will subsequently be transferred to the PIU in SAG/DINADERS.

Field staff. Three field officers will be based in the pilot areas (one in Sico-Paulaya and two in Texíguat), operating from and sharing PRONADEL offices. For the last two years of the project these staff members will be transferred to UMA offices in local municipalities.

National Project Director (Vice Minister of Agriculture)
The National Project Director will operate at no cost to the GEF project.
Duration of post: 6 years
Location: Offices of the Vice-Minister of SAG
Responsibilities:
Provide strategic guidance to the Project Coordinator
Authorize the appointment and contractual arrangements of the Project Coordinator
Chair the Project Steering Committee (PSC)

Project Coordinator
Duration of post: 6 years
Location: PRONADEL (years 1-2), DINADERS or SAG (years 3-6).
Responsibilities:
Years 1-2:
Provide overall management of the project;
Advise PRONADEL management on the incorporation of environmental criteria for the approval of rural demand-driven investment being funded by PRONADEL.
Review the environmental criteria prepared during the PDF Block B Grant, make adjustments if necessary and widely distribute its recommendations
Prepare detailed Terms of Reference for work to be carried out by independent consultants
Contribute to the design of training programs for PRONADEL and other project's staff, executing agencies and municipalities
Participate in the design of planning tools and instruments for the management of identified watersheds
Ensure the incorporation of a gender dimension in all project activities
Participate in the design of municipal management plans
Provide supervision and advice to the monitoring and evaluation activities of the project
Prepare the rules of procedure for the PSC
Act as the Secretariat for meetings of the PSC
Represent the project in discussion with national authorities and other donors
Prepare terms of reference and arrange for the realization of project evaluations
Prepare progress reports and draft of Annual Work Plans and Budgets (AWPB) to be considered by the PSC.
Prepare the Terms of Reference for a Mid-Term and End-of-Project external evaluation of project results
Provide quarterly inputs for the preparation of the Project's Progress Reports

Years 3-6
As above, plus:
Further the inclusion of environmental concerns in rural development projects under the aegis of SAG/DINADERS;
Advise SAG/DINADERS, UPEG/SAG and SERNA on the revision of proposed legislation related to forestry, land use planning, soil and water and rural development in general.
Provide advice to the Director of DINADERS on natural resource issues in the context of rural development
Assist in inter-agency coordination between DINADERS and other sector agencies located within SERNA.

Environment and Natural Resources Specialist
Duration of post: 6 years
Location: Sub-Direction of Local Institutional Strengthening, PRONADEL (years 1-4); DINADERS (years 5-6).
Responsibilities:

Support the Director in discharging his overall responsibilities
Advise PRONADEL management on the incorporation of environmental criteria for the approval of rural demand-driven investment being funded by PRONADEL.
Provide advice to the regional offices of PRONADEL (UCC) on the incorporation of environmental considerations.
Provide backstopping support and direction to three environmental field officers to be attached to the existing PRONADEL field offices in the selected pilot areas.
Define implementation parameters for the strengthening of municipal environmental units (UMA)
Define implementation modalities for the preparation of watershed management plans

Field Officers (3)
Duration of post: 6 years
Location: 2 in Texíguat Pilot Area, 1 in Sico Pilot Area.
Responsibilities:
Coordinate, arrange and supervise the implementation of project activities in the two pilot areas by contracted service providers.
Assist PRONADEL field staff in the identification of beneficiary demands, specifically in the environment and natural resources fields
Prepare monthly progress reports

Assistant to the Project Coordinator
Duration of post: 6 years
Location: PRONADEL (years 1-2), DINADERS or SAG (years 3-6)
Responsibilities:
Assist in Project start-up activities
Maintain appropriate records and correspondence
Keep accounting records in accordance with sound accounting practices
Support training and planning activities
Prepare monthly expenditure statements
Participate in the preparation of the Annual Work Plans and Budgets

Assistant to the Sub-Director (Administration) of PRONADEL
Duration of post: 6 years
Location: PRONADEL (years 1-4), DINADERS or SAG (years 5-6)
Responsibilities:
Provide assistance to the Sub-Director (Administration) of PRONADEL in the administration of the GEF project budget.

Project Steering Committee
The PSC would be composed of: (i) the Vice Minister of Agriculture, who will preside it; (ii) the Vice-Minister of SERNA; (iii) the Executive Director of DINADERS, (iv) the Director of the Environmental Management Directorate (DGA) of SERNA; (v) a representative of UNDP. The Project Director would act as Secretary to the Committee.

The PSC will meet at project start–up in order to review the project's overall operational plan and budget. In its first session, the PSC will approve its Rules of Procedure and prepare an agenda for its second meeting. The PSC will meet twice yearly. During its December meeting, the PSC would consider the AWPB and the Annual Progress Report and make recommendations for further implementation.

Annex R: Baseline and co-financing

Baseline Activities in Sico-Paulaya Pilot Area

1. CATIE/Transforma

The Transforma project, implemented by the Tropical Agronomic Research and Teaching Centre CATIE, aims to promote sustainable forest management and forest product commercialization, in broadleaf forests. The project works with technicians and extensionists, organized forest users, academia, NGOs and projects, government decision makers and research centres. In SPPA, the project has since 1999 provided support to the cooperatives in Copén and Paya in very specific activities related to forest management and harvesting techniques, with financial support from COSUDE and GTZ. The project's support will finish in 2003.

2. COSPE

COSPE, an Italian NGO, has been active in the Atlantic region of Honduras since 1992, promoting community-based forest management through groups affiliated to the cooperative COATLAHL in the north coast and the collective societies of Copén and Paya in the Sico-Paulaya Valley. COSPE has been supporting the formulation and execution of management plans, promoting local capacity for forest management, timber certification, timber processing and marketing.

Although COSPE is no longer active in the Sico-Paulaya valley, a new project is under formulation which has been submitted to the EU for funding, for a total of €2,331,846, covering three Central American countries (Guatemala, Honduras and Nicaragua), within the framework of the Tropical Forestry in Developing Countries Programme.

3. MOPAWI

MOPAWI is a local NGO based in Puerto Lempira in the Mosquitia region, dedicated to sustainable integrated human development and nature conservation in northeastern Honduras. It has the following areas of technical operation:

- Sustainable agriculture: technical assistance to farmers in three areas of the Mosquitia in the production of cocoa, cashew, oil palm, fruit trees, basic grains, vegetables and others, using organic agricultural practices.
- Women's development: a cross-cutting theme in all of the NGO's activities.
- Community forestry development: community organization, small enterprise management, management plans and usufruct agreements.
- Intercultural bilingual education.
- Organizational strengthening: support to indigenous groups in lobbying for land rights and natural resource protection.
- Political advocacy: promotion and education in policies and laws.
- Integrated management of the RPBR: promotes community participation and scientific research for sustainable management of the RPBR, including agroforestry projects and others such as a butterfly farm, marine turtle conservation, green iguana conservation and community ecotourism projects.
- Management of coastal and marine resources: support to lobster divers to reduce decompression injuries.

- Small enterprise and credit: provides credit services to individual small enterprises through community banks.
- Primary health care.
- Institutional strengthening.

MOPAWI has introduced a portable sawmill to the SPPA for use by the Copén and Paya cooperatives. However the NGO is not currently active in the pilot area due to lack of funding support.

4. National Agrarian Institute (INA)

In accordance with Decree PCM 009-95, between 1998 and 2001 INA titled 18,000 ha of land in the SPPA, including 3,068 ha.

5. PRONADEL

The approximate investment by PRONADEL in the SPPA, calculated proportionally on the basis of the area of the SPPA in relation to the overall coverage of PRONADEL, is shown below.

Budget line	Source				
	IFAD	CABIE	GoH	Communities	Total
Rural Development Fund	1,250,071	377,849	25,614	360,087	2,013,622
Local Institutional Strengthening	440,062	-	19,412	-	459,475
Total	1,690,134	377,849	45,026	360,087	2,473,097

6. Río Plátano Biosphere Reserve Project

This project is executed by the AFE-COHDEFOR, with funding from KfW and technical support from GTZ. The project has an eco-development programme, which includes agricultural and forestry sub-programmes. Through these, agricultural, agroforestry and forestry production is supported, integrated with investment in social and productive infrastructure. This includes infrastructure for coffee and cocoa production and processing, the establishment of systems of rotational grazing, forestry production and processing, as well as water distribution systems for communities in the Paulaya and Wampú watersheds.

The project has budgeted a total of US$ 494,595 for support to the intensification of cattle ranching, of which $102,945 is for technical staff and $391,650 for incentives. The target population for this support consists of 300 farmers covering 3,300ha. 150 of these farmers, covering a total of 2000ha, are located in the western buffer zone (mostly the Sico-Paulaya area). Adjusted proportionally by area, investment in the SPPA is therefore around US$ 300,000 (of which $62,390 is for technical staff and $237,610 for incentives). This target population represents 70% of the ranchers in the western buffer zone. This budget is intended for grant support for pasture seeding, establishment of protein and energy banks, pasture fertilizer, fencing and forage shredders.

Support by the project to sustainable forest management is budgeted at a total of Lps. 4,646,450 (around US$ 275,000), made up of around US$ 100,000 from AFE-COHDEFOR, US$ 140,000 from KfW and US$ 35,000 from local communities.

	AFE-COHDEFOR	KfW	Communities	Total
Coordinator and field foresters	85,714	57,143	-	**142,857**
Technology transfer	-	39,012	3,274	**42,286**
Management plan preparation	19,317	29,445	27,789	**76,551**
Total	**105,032**	**125,599**	**31,063**	**261,693**

Although not explicitly budgeted, AFE-COHDEFOR staff and advisors, through the RPBR Project, provide follow-up support to the implementation of the RPBR management plan whose preparation was facilitated by that project. Taking into account salaries and associated costs, this support is estimated at $50,000 over the life of the project.

7. Pastoral Social de Tocoa

The Pastoral Social, as the social action arm of the Catholic Church, has been active in the region since the 1990s, increasing its presence following Hurricane Mitch in 1998. It enjoys broad grassroots support and wide geographical coverage. The local emergency committees which it promoted following Mitch have now been converted into local development committees (CODELs), grouped into the municipal level UNICOM.

To date its presence in Sico has been limited, compared to other areas such as the Aguán valley. However, between 2000 and 2002 it has promoted communications between the diverse institutional stakeholders and at times mutually antagonistic stakeholder sectors in SPPA, resulting in the formation of the Inter-institutional Committee and subsequently the Development Committee for Sico-Paulaya (CODESPA).

The Pastoral Social is also highly active in political lobbying at local level, regarding issues such as land tenure rights of the *campesino* sector.

The budgetary investment of the Pastoral Social in the municipalities of Iriona and Juan Francisco Bulnes, including both the garífuna coast and the Sico-Paulaya valley, is around US$71,000 per year, of which 75% corresponds to salaries and 25% on fuel, per diems and other operating costs. It is estimated here that 80% of this budget corresponds to local level actions and 20% to lobbying and activism. Despite its limited budgetary investment to date, the importance of the Pastoral Social in the baseline scenario, and as an institutional partner of the project, should not be underestimated given its grassroots support and its presence in both *garífuna* and *ladino* communities.

8. PROARCA

PROARCA (financed by USAID) has as objective the improvement of environmental management in the Mesoamerican Biological Corridor. Its four principal components are:

- Improvement of protected areas management
- Promotion of marketing of environmentally friendly products
- Harmonization of environmental laws
- Promotion at municipal and private level the use of less polluting technologies.

In the SPPA, it plans to carry out activities with the communities of Copén and Paya aimed at promoting the marketing of environmentally friendly products, with a budget not exceeding US$ 10,000.

9. RERURAL

This SAG project, which covers 256 municipalities in the country with human development levels lower than 0.6, has as its general objective "channeling productive investments through the assignation of resources and services to reactivate the rural economy and contribute to poverty reduction". It attends four types of projects: a) Productive capital; b) human capital; basic physical infrastructure and d) natural resource management. In the SPPA, it is supporting the rehabilitation of the road network and will fund drinking water systems.

Its total budget (2001-2004) is US$33 million. The level of investment in the SPPA will depend on the capacity of the municipalities to present projects; calculated proportionally without taking into account this factor, it is estimated that the investment in the area could be in the order of US$100,000.

10. Sico-Paulaya Project

This project, funded by the Japanese Government (2KR) was established in 1995 in response to the titling of land to campesino groups in the valley. Its activities to date have been the following:

- delimitation and marking of the zone affected by the agrarian reform
- rural land titling studies
- mapping and soil studies
- environmental impact assessment
- environmental education
- establishment of interinstitutional offices.

The current phase was due to finish at the end of 2002, although a number of activities, such as the construction of the interinstitutional office, are still in progress.

The project's budget for 2002 was US$314,700; significant items of recent expenditure include the EIA study (US$135,000), the 3-month environmental education programme (US$15,000) and the construction of the interinstitutional centre (US$160,000).

The proposed second phase (2003-2004) will have the following components:

- development of local management capacity and institutional strengthening
- production and commercialization
- natural resource management.

The proposed budget for this extension is US$540,000, of which US$290,000 will be provided by the Government of Honduras and US$250,000 by the Government of Japan.

11. Trocaire

The Irish NGO Trocaire is supporting cattle ranching among 100 small producer groups in Jardines de la Sierra in the SPPA. 2002 financing was equal to $26,500.

Baseline Activities in Texíguat Pilot Area

1. World Food Programme/AFE-COHDEFOR

This project is working in soil and water conservation, environmental recuperation (tree plantations), and studies and training in forestry and agricultural practices. The duration of the agreement between WFP and the Government of Honduras is 5 years, from 2002 to 2006. The contribution of the project to the study area in 2002 was equivalent to 5.0 million lempiras, equal to around US$295,000, of which around US$165,000 was provided by WFP in the form of food aid, US$70,000 by local communities in the form of labour, and US$60,000 by AFE-COHDEFOR in the form of personnel and operating costs.

2. Caritas de Honduras

This organization of the Catholic Church is working, in collaboration with UMAs, in 21 communities in 4 of the municipalities in the Texíguat watershed. Its activities include reforestation, agroforestry, training, organization, installation and management of nurseries, small irrigation systems, soft loans for fertilizers and seed, support of environmental leaders and micro-watershed protection.

Caritas has offices in the parishes of each of the municipalities in which it works, and has extensionists with transport. Its investment in the area is estimated at Lps. 600,000 per year (around US$35,294).

3. RERURAL

Of the 12 municipalities which overlap wholly or partially with the TPA, 10 are covered by RERURAL. In 2002, RERURAL financed rural electrification, drinking water and road construction projects. As explained above in the case of SPPA, the future allocation of resources to the area will depend on the municipalities' capacity to formulate projects. However, calculated proportionally solely on the basis of the number of municipalities included, the budget allocation is estimated at US$1.3 million.

4. World Vision

World Vision has an office in Texíguat, with presence in the municipalities of Texíguat, Vado Ancho, San Lucas, Morolica, Liure, Soledad and San Antonio de Flores (the first four of these municipalities are in the pilot area). Its activities are concentrated on sustainable agriculture, soil conservation, training, organization, small livestock, information systematization, health, housing and formal education. Its annual budget for the area is around $176,500.

5. Panamerican Agricultural School (EAP), Zamorano

Up until 2001, the EAP supported San Lucas municipality in the preparation of 2 management plans for micro-watersheds, and in water supply projects. Currently the EAP provides strengthening to the UMAs in the upper part of the watershed, in the form of logistical support (motorcycles and computers) and training. Between 2003 and 2004 EAP will allocate between US$2,000 and 3,000 to 10 municipalities in the area to cover operating costs, as follow-up to the now finished USAID project. The San Lucas municipality assigns around US$11,200 to its UMA.

6. PRONADEL

The approximate investment by PRONADEL in the TPA, calculated proportionally on the basis of the area of the SPPA in relation to the overall coverage of PRONADEL, is shown below.

Budget line	Source (Figures in $)				
	IFAD	CABIE	GoH	Communities	Total
Rural Development Fund	669,681	202,419	13,722	192,904	1,078,726
Local Institutional Strengthening	235,748	-	10,399	-	246,147
Total	905,429	202,419	24,121	192,904	1,324,873

7. Municipalities

15 municipalities are wholly or partly included in the two pilot areas and are carrying out, in widely varying degrees, activities of resource management planning and regulation. Assuming that between $100 and $200 are dedicated monthly per municipality over the 6 year life of the project, and taking into account that most of the municipalities are only partly included in the pilot areas, it is assumed that baseline funding from municipalities for resource management planning, over the period of the project, is around $100,000.

8. Dutch cooperation

The Government of Holland is supporting micro-watershed management planning in a number of municipalities in the Texíguat catchment. The baseline budget for this support is estimated at $100,000.

Co-financing

PRONADEL

For details of the objectives, activities and structure of PRONADEL see Annex M. The outstanding budget balance of PRONADEL (as of start 2003, and minus the budget destined for the two pilot areas and for the Process Improvement Component in DINADERS, considered as baseline funding) is shown below.

Budget line	Source				Total
	IFAD	CABIE	GoH	Communities	
Rural Development Fund	16,439,072	4,968,908	336,840	4,735,330	**26,480,152**
Local Institutional Strengthening	5,787,044	0	59,264		**5,846,308**
Vehicles and equipment	187,608	0	33,109		**220,717**
Operational costs	6,817,292	0	0		**6,817,292**
Total	**29,231,017**	**4,968,908**	**429,213**	**4,735,330**	**39,364,469**

The outstanding budget with "overheads" distributed proportionally between the two principal components of the project, the Rural Development Fund and Local Institutional Strengthening, is shown below.

Budget line	Total
Rural Development Fund	**32,210,575**
Local Institutional Strengthening	**7,349,911**
Total	**39,364,469**

Summary of baseline funding by output

Output	GEF budget	Baseline funding sources	Nature of baseline activities	Baseline funding amount
1.1 Environmental criteria and mechanisms, and lessons learnt in the pilot areas, mainstreamed into PRONADEL's finance strategies and activities (project identification, design, approval and monitoring), and operational instruments at national level, so that gains by local communities in productivity are accompanied by global environmental benefits.	**392,507**	IDB	Natural Resource Management in Priority Watersheds Project	35,000,000
		World Bank/GEF	Biodiversity in Priority Protected Areas Project	3,000,000
		IDB	Economy Reactivation in Rural Areas Project (RERURAL)	15,000,000
		European Union	Jicatuyo Watershed Project	7,000,000
		Canadian International Development Agency	Regional Programme for Strengthening of Local Capacities in Watershed Management and Prevention of Natural Disasters.	2,000,000
		World Bank	Rural Areas Administration Project	30,000,000
		USAID (CARE)	Extension for Food Security Project	1,000,000
		GTZ	Conservation, Natural Resource Management and Rural Development Project	3,000,000
			Total baseline funding	**96,000,000**
2.1 Application of inter-sector and participatory processes of IEWM and planning in two pilot areas.	**455,539**	Municipalities	Resource management planning	100,000
		AFE-COHDEFOR/GTZ	Follow up support to RPBR management planning	50,000
		Dutch cooperation	Micro-watershed management planning	100,000
			Total baseline funding	**250,000**
2.2 DINADERS and local and national civil society with capacity and access to information which permit them to achieve reforms in legislation, policies, regulations and economic incentives necessary to promote global environmental benefits in the pilot areas	**86,143**	Pastoral Social	Direct lobbying and lobbying support	85,200
		GTZ	Political lobbying component of Conservation, Natural Resource Management and Rural Development Project	1,000,000
			Total baseline funding	**1,085,200**
2.3 Environmental investment projects established in the pilot areas which help promote global environmental values.	**1,082,258**	KfW	Incentive support to the intensification of cattle ranching in SPPA	300,000
		PRONADEL (IFAD)	Environmental projects in SPPA	56,000

		Government of Japan (Sico-Paulaya Project)		97,000
		GoH (Sico-Paulaya Project)		83,500
		PRONADEL (IFAD)	Environmental projects in TPA	30,000
		World Food Programme		577,500
		Local communities (WFP project)		245,000
		AFE-COHDEFOR (WFP project)		210,000
			Total baseline funding	**1,599,000**
2.4 Institutions, projects, service providers and local entities in the pilot areas with capacity to incorporate and apply participatory IEWM, apply effective regulation and support productive activities which promote global benefits.	**681,151**	Pastoral Social Tocoa	Facilitation of discussions and promotion of governance in SPPA	340,800
		PRONADEL (IFAD)	Strengthening of local institutions in SPPA	440,062
		PRONADEL (GoH)		19,412
		Government of Japan (Sico-Paulaya Project)		96,000
		GoH (Sico-Paulaya Project)		83,000
		PRONADEL (IFAD)	Strengthening of local institutions in TPA	235,748
		PRONADEL (GoH)		10,399
		EAP		5,000
			Total baseline funding	**1,230,421**
2.5 Local stakeholders in the pilot areas with increased organizational and technical capacity, security of access to natural resources and awareness which permit them to counter environmental threats and participate in community-based natural resource management.	**1,263,906**	KfW	Support to sustainable forest management in SPPA	125,599
		GoH (AFE-COHDEFOR)		105,032
		Communities		31,063
		PROARCA	Support to production of environmentally friendly products in Copén y Paya	10,000
		RERURAL	Road rehabilitation and drinking water systems in SPPA	100,000
		PRONADEL (IFAD)	Support of productive activities in SPPA	1,250,071
		PRONADEL (CABIE)		377,849
		PRONADEL (GoH)		25,614
		PRONADEL (communities)		360,087
		Trocaire		159,000
		Government of Japan (Sico-Paulaya Project)		97,000

		GoH (Sico-Paulaya Project)		83,500
		PRONADEL (IFAD)	Support of productive activities in TPA	669,681
		PRONADEL (CABIE)		202,419
		PRONADEL (GoH)		13,722
		PRONADEL (communities)		192,904
		Caritas de Honduras	Reforestation, agroforestry and agricultural extension and credit, training, organization, environmental protection	215,544
		RERURAL	Road rehabilitation and drinking water systems in TPA	1,300,000
		World Vision	Sustainable agriculture, soil conservation, training, organization, small livestock, information systematization, health, housing and formal education	1,059,000
			Total baseline funding	**6,378,085**
3.1 Lessons learnt at pilot area and project level have been disseminated to other rural development projects in the region	**146,409**		**Total baseline funding**	**0**
3.2 DINADERS and SERNA with increased awareness of integrated approaches to conservation and rural development and increased capacity to apply them.	**98,623**	IFAD	Process Improvement Component in DINADERS	800,000
			Total baseline funding	**800,000**

Annex S i: Incremental Cost Analysis

Components and Outputs	Baseline	Alternative	Increment
Component 1: Considerations to achieve multiple global environmental benefits using IEM principles have been successfully mainstreamed into PRONADEL´s national procedures and operations and are effectively producing the expected results.			
Output 1.1: Environmental considerations, including mechanisms for environmental evaluation, monitoring and mitigation, mainstreamed into PRONADEL financed rural development operations, and fined tuned over time with lessons learnt from pilot studies.	$96,000,000 (IDB, World Bank, GEF, EU, CIDA, USAID, GTZ)	$135,756,976	$39,756,975 Of which: - $39,364,468 (IFAD, CABIE, GoH and in-kind community contributions to PRONADEL budget for supporting local productive initiatives and strengthening local institutions) - $392,507 is GEF funding
Component 2: The approach to integrate IEM principles in PRONADEL's operations has been successfully demonstrated and validated to yield multiple global environmental benefits in two pilot areas			
Output 2.1*:* Application of cross-sectoral and participatory planning for IEWM in the two pilot areas.	$250,000 (Municipalities, GTZ, GoH and Government of Netherlands)	$705,539	$455,539 (GEF)
Output 2.2*:* Inclusion of considerations of IEM in the policy formulation and lobbying processes of key national institutions, with mandates in resource management and rural development, has led to modifications in legislation, policies, regulations and economic incentives which	$885,200 (Pastoral Social and IFAD)	$971,343	$86,143 (GEF)

promote global environmental benefits in the pilot areas.			
Output 2.3*:* Demonstration projects in alternative productive and land-use practices established in the pilot areas providing critical information for the application of IEM.	$1,599,000 (KfW, IFAD, Government of Japan, GoH, World Food Programme)	$2,681,258	$1,082,258 (GEF)
Output 2.4*:* Key institutions in pilot areas have increased awareness in, and capacity for applying and enforcing IEM.	$1,230,421 (Pastoral Social, IFAD, GoH, Government of Japan, Panamerican Agricultural School)	$1,911,572	$681,151 (GEF)
Output 2.5: Local stakeholders in the pilot areas have increased awareness in, and capacity for applying IEM and alternative land use practices .	$6,378,085 (KfW, GoH, local communities, PROARCA, RERURAL, IFAD, CABIE, Trocaire, Government of Japan, Caritas of Honduras, World Vision)	$7,641,991	$1,263,906 (GEF)
Component 3: The experiences learned at pilot area and project level have been captured and documented and have been successfully disseminated to a wide audience of funding agencies involved in development and conservation activities, both in Honduras and throughout Central America			
Output 3.1: Lessons learnt at pilot area and project level recorded and disseminated to stakeholders in conservation and rural development throughout Central America	$nil	$146,409	$146,409 (GEF)
Output 3.2: Key government institutions (SAG (UPEG and DINADERS) and SERNA) have increased awareness and capacity for applying of integrated approaches to conservation and rural development.	$800,000 (IFAD – PRONADEL Process Improvement Component in DINADERS)	$898,623	$98,623 (GEF)

Annex S ii: Incremental Costing Logic

Output	Cost (US$ Millions)	Domestic Benefit	Global Benefit
1.1 Environmental mainstreaming in PRONADEL	Baseline = 96.0	PRONADEL and CLAPs apply existing environmental checklist to project proposals presented for funding, resulting in the filtering out of most projects likely to cause degradation of soil, water and forest resources. However the checklist is poorly understood and applied, limiting opportunities to identify impacts and their significance, and mitigation measures. PRONADEL staff members continue to emphasise short term production at the expense of natural (soil, water and forest) capital, promoting practices which either degrade natural capital or fail effectively to develop it, and missing opportunities for combining local economic development with resource conservation.	Funding of productive initiatives by PRONADEL fails to take into account considerations of biodiversity and other global environmental values, leading to the degradation of globally important ecosystems and populations. Existing provisions for the protection of forests around water sources confer some carbon storage benefit, and incidental ecosystem and species protection, but this is not focused on priority areas. PRONADEL staff members promote practices which degrade, or fail to promote, global benefits including biodiversity in agroecosystems and sustainable land use systems, and miss opportunities for combining local economic development with the conservation of global benefits.
	Alternative = 135.75 (GEF = 0.39 Others = 39.36) Increment = 39.75	Improved mechanisms, knowledge and awareness in PRONADEL lead to more effective evaluation of potential impacts of projects on domestic benefits (soil, water and forests) and identification of measures to mitigate impacts. Members of productive groups, PRONADEL and CLAPs formulate and approve more projects which combine domestic and global benefits. PRONADEL staff members promote practices which combine economic development and domestic resource conservation, and take into account the interests of diverse stakeholder groups rather than just the programme's direct target population.	Improved mechanisms, knowledge and awareness in PRONADEL lead to more effective evaluation of potential impacts of projects on global benefits (biodiversity, land and carbon) and identification of measures to mitigate impacts. Members of productive groups, PRONADEL and CLAPs formulate and approve more projects which combine domestic and global benefits. PRONADEL staff members promote practices which combine economic development with the conservation of global benefits, including biodiversity, carbon and land and ecosystem resilience.
2.1 Application of IEWM in pilot areas	Baseline = 0.25	Inputs by DINADERS and the Pastoral Social give continuity to discussion processes among stakeholder groups in SPPA. However a lack of solid, participatory and well-informed planning processes leads to individual stakeholder sectors pursuing their economic interests at the expense of domestic benefits to others, resulting in the deforestation of water sources, the overuse of water resources (in TPA) and the degradation of fish and shrimp stocks (in SPPA). In TPA, lack of supra-municipal planning fails to promote rational resource use at catchment level.	In SPPA, lack of consensus or objective prioritization of actions leads opportunist stakeholders to continue degrading global environmental values by clearing forest areas, thereby liberating carbon and reducing species and ecosystem diversity. In TPA, lack of planning at supra-municipal level leads to missed opportunities for combining domestic and global benefits, and watershed degradation affects the global environmental values of the Gulf of Fonseca.
	Alternative = 0.70 (GEF = 0.45 Others = 0.0) Increment = 0.45	Natural resources and the opportunity costs of resource conservation are equitably distributed among different stakeholder groups in the pilot areas on the basis of negotiation, and improved coordination and planning of actions leads to more effective and efficient protection of shared natural resources (soil, water and forests).	Improved coordination and planning of actions leads to more effective and efficient protection of forest resources and biodiversity which confer both local and global benefits.

2.2 Improved policy and regulations through increased lobbying capacity	Baseline = 1.09	Laws and policies fail to reflect local needs and conditions, fomenting practices which degrade natural resources of local importance (soil, water, forests) and reducing the effectiveness of productive and regulatory solutions to degradation.	Laws and policies fail to reflect local conditions, fomenting practices which degrade natural resources of global importance (carbon, biodiversity, land and ecosystem sustainability) and reducing the effectiveness of productive and regulatory solutions to degradation.
	Alternative = 1.18 (GEF = 0.09 Others = 0.0) Increment = 0.09	Increased relevance of laws and policies to local conditions avoids promoting resource degradation and leads to increased effectiveness of productive and regulatory solutions to degradation.	Increased relevance of laws and policies to local conditions avoids promoting the degradation of global benefits and leads to increased effectiveness of productive and regulatory solutions to degradation.
2.3 Pilot Area demonstration projects in alternative productive and land-use practices.	Baseline = 1.60	PRONADEL finances environmental investment projects in each municipality, though these are insufficient in scale, and lack sufficient guidance, to confer significant domestic benefits in terms of natural resource conservation. Otherwise, only those activities which are justified in strictly economic terms are financed by PRONADEL and other development projects and organisations. Investment in innovative activities, compatible with the conservation and promotion of natural capital (soil, water and forests) is limited by financial, technical and infrastructural barriers.	Only those activities which are justified in strictly economic terms are financed by PRONADEL and other development projects and organisations. Investment in innovative activities, compatible with the conservation and promotion of global benefits (biodiversity, carbon, land and ecosystem resilience) is limited by financial, technical and infrastructural barriers.
	Alternative = 2.68 (GEF = 1.08 Others = 0.0) Increment = 1.08	Stocks of natural capital (soil, water, forests) are actively promoted through initiatives supported by direct grant financing, or made economically viable by grant investment in the removal of technical and infrastructural barriers, leading to win-win situations in which natural resource conservation and economic development are achieved simultaneously.	Global benefits (biodiversity, carbon, land and ecosystem resilience) are actively promoted through initiatives supported by direct grant financing, or made economically viable by grant investment in the removal of technical and infrastructural barriers, leading to win-win situations in which the conservation of global benefits and economic development are achieved simultaneously.
2.4 Institutional strengthening in pilot areas.	Baseline = 1.23	PRONADEL/IFAD finances training and equipment support to UMAs; however the low level of investment and the lack of guidance result in municipal planning and control of natural resources continuing to be weak. In SPPA, Pastonal Social continues to strengthen Fundación Popol Nah Tun and the *campesino* sector, however other sectors are not similarly strengthened, limiting possibilities of balanced dialogue on the management and protection of natural resources and local benefits. Regulation of resource use is ineffective due to the weakness of State institutions and lack of coordination. In TPA, ineffective technical support by institutions leads to a perpetuation of the vulnerability of production systems and rural livelihoods to environmental shocks.	PRONADEL support to UMAs fails to take into account global benefits which do not coincide with local benefits. In SPPA, the Río Plátano Biosphere Reserve Project strengthens AFE-COHDEFOR in the protection of global benefits in the buffer zone, but poor governance conditions and the lack of capacity among other institutional actors undermine their regulation activities, resulting in the continued loss of biodiversity and carbon stocks through deforestation. In TPA, lack of clarity among institutions on concepts related to natural resource management perpetuates the ineffectiveness of their inputs, leading to continued land and ecosystem degradation and sediment impacts in the Gulf of Fonseca.

	Alternative = 1.91 (GEF = 0.68 Others = 0.0) Increment = 0.68	Increased awareness, information availability and coordination allow institutions in the pilot areas to identify and apply effective regulatory initiatives and technical support solutions, leading to improved conservation of natural resources which confers domestic benefits (water supply, soil productivity, forest product availability, reduction of vulnerability to environmental shocks).	Increased awareness, information availability and coordination allow institutions in the pilot areas to identify and apply effective regulatory initiatives and technical support solutions, leading to improved conservation of global benefits (biodiversity, carbon storage, land and ecosystem resilience).
2.5 Increased capacities among local stakeholders in pilot areas	Baseline = 6.38	Due to lack of organization among local stakeholders, their natural resources suffer degradation from uncontrolled and inappropriate extractive and productive activities (e.g. forest clearance for cattle, excessive water use for irrigation). Due to lack of technical knowledge, their productive activities are limited in scope, resulting in missed opportunities actively to contribute to the conservation of natural resources.	Due to lack of organization among local stakeholders, the global environmental values (biodiversity, carbon, land and ecosystem resilience) within their areas of influence suffer degradation from uncontrolled and inappropriate extractive and productive activities. Due to lack of technical knowledge, their productive activities are limited in scope, resulting in missed opportunities actively to contribute to the conservation of global environmental values.
	Alternative = 7.64 (GEF = 1.26 Others = 0.0) Increment = 1.26	In SPPA, increased organization and usufruct rights among inhabitants of the RPBR buffer zone allows them to counter degradation of the forest, soil and water resources on which they depend by extensive cattle ranching and migratory farming. Local stakeholders' perceptions of benefit flows to them from forest and aquatic ecosystems are increased, leading to increased protection and increased compatibility between productive activities and the conservation of natural resources. In TPA, the sustainability of production systems is increased, and their vulnerability to environmental shocks, are reduced by the identification and application of appropriate resource management practices.	In SPPA, increased organization and usufruct rights among inhabitants of the RPBR buffer zone allow them to counter deforestation processes which are degrading biodiversity and carbon stocks. Increased perceptions on the part of local stakeholders of the domestic benefits of ecosystems lead them incidentally to increase the protection of global environmental values. In TPA, increased sustainability of production systems is accompanied by increased resilience of land and ecosystems (reduced land degradation); while the generation of income from specific components of the biodiversity (e.g. *L. salvadorensis* seed and *P. schumannii* fruit) leads to their increased protection.
3.1 Lessons learnt disseminated regionally	Baseline = 0.0	Projects, programmes and institutions throughout Central America continue to support productive activities which degrade natural resources; opportunities are missed to generate increased local income through the innovative use of biodiversity and natural resources.	Projects, programmes and institutions throughout Central America continue to support productive activities which degrade global environmental values.

	Alternative = 0.15 (GEF = 0.15 Others = 0.0) Increment = 0.15	Projects, programmes and institutions throughout Central America identify and promote productive activities which contribute to the sustainable management of natural resources, conferring increased long term domestic benefits in terms of water supply, soil productivity and forest product availability.	Projects, programmes and institutions throughout Central America identify and promote productive activities which contribute to the conservation of global environmental values (biodiversity, carbon, land and ecosystem resilience).
3.2 Increased institutional capacities at national level	Baseline = 0.80	Projects, programmes and institutions throughout Honduras continue to support productive activities which degrade natural resources; opportunities are missed to generate increased local income through the innovative use of biodiversity and natural resources.	Projects, programmes and institutions throughout Honduras continue to support productive activities which degrade global environmental values.
	Alternative = 0.90 (GEF = 0.10 Others = 0.0) Increment = 0.10	Projects, programmes and institutions throughout Honduras identify and promote productive activities which contribute to the sustainable management of natural resources, conferring increased long term domestic benefits in terms of water supply, soil productivity and forest product availability.	Projects, programmes and institutions throughout Honduras identify and promote productive activities which contribute to the conservation of global environmental values (biodiversity, carbon, land and ecosystem resilience).
	Base-line = 107.35		
	Alternative = 150.91		
	Total Project = 43.56 [of which GEF will contribute 4.20 and others 39.36]		

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