

Document of the International Fund for Agricultural Development (IFAD)
and the Global Environment Facility (GEF)

Republic of Ecuador
SUSTAINABLE MANAGEMENT OF BIODIVERSITY AND WATER RESOURCES
IN THE IBARRA-SAN LORENZO CORRIDOR

Project Design Report
Main Report, Annexes, and Appendixes

Latin American and the Caribbean Division
Environment and Climate Division
Programme Management Department

December 2010

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without the authorization of the International Fund for Agricultural Development (IFAD)/Global Environment Facility (GEF)

REPUBLIC OF ECUADOR
SUSTAINABLE MANAGEMENT OF BIODIVERSITY AND WATER RESOURCES IN THE
IBARRA-SAN LORENZO CORRIDOR

TABLE OF CONTENTS

EXECUTIVE SUMMARY

INTRODUCTION

I.	SITUATION ANALYSIS	12
A.	INSTITUTIONAL, LEGAL, AND ORGANIZATIONAL CONTEXT.....	12
	A.1. Institutional aspects	12
	A.2. Legal aspects	14
B.	SOCIOECONOMIC CONTEXT	15
C.	ENVIRONMENTAL CONTEXT.....	18
	C.1. National environmental context	18
	C.2. Description of the problem. Environmental pressures and their causes	19
	C.3. Threats to biodiversity and the productive potential of the natural resource base	19
	C.4. Obstacles and barriers to rational environmental management.....	20
D.	PROJECT AREA AND TARGET GROUPS	21
	D.1. Project area	21
	D.2. Target groups.....	24
E.	ENVIRONMENTAL PROBLEMS IN THE PROJECT ZONE.....	26
	E.1. Biophysical features of the project zone: A. Andean region (Carchi, Imbabura)	27
	E.2. Biophysical features of the project zone: B. Coastal region (Esmeraldas).....	28
	E.3. Present situation: Baseline.....	31
F.	PROJECT FORMULATION PROCESS. INSTITUTIONS AND ORGANIZATIONS INVOLVED	33
II.	PROJECT STRATEGY	35
A.	PROJECT JUSTIFICATION AND DESIGN	35
	A.1. Design of the operation	35
	A.2. Consistency with GEF policies and strategies.....	37
	A.3. Consistency with national policies and strategies	39
	A.4. Project value added	42
B.	ELIGIBILITY	44
	B.1. Country commitment.....	44
	B.2. Project ownership	46
C.	PROGRAMME OBJECTIVES AND DESCRIPTION	48
	C.1. Project goal.....	48
	C.2. Project objective	48
	C.3. Components and activities.....	48
	C.4. Indicators	51
D.	EXPECTED ENVIRONMENTAL BENEFITS	54
	D.1. Expected benefits at global level.....	54
	D.2. Expected benefits at national level.....	55
	D.3. Other expected benefits at local level.....	55
E.	LINKAGES BETWEEN THE PROJECT AND OTHER SIMILAR INITIATIVES	56

E.1.	GEF regional and national projects	56
E.2.	Other significant natural resource management projects in the project zone	59
F.	RISKS AND MITIGATION MEASURES.....	61
F.1.	Risks of political instability and insecurity	61
F.2.	Risks associated with climate change.....	61
F.3.	Institutional shortcomings	61
F.4.	Risks related to social participation.....	61
F.5.	Financial risks.....	62
F.6.	Difficulties related to innovative schemes	62
G.	SUSTAINABILITY AND REPLICABILITY.....	63
G.1.	Institutional and social feasibility.....	64
G.2.	Environmental feasibility	64
III.	INSTITUTIONAL FRAMEWORK AND MANAGEMENT MECHANISMS	66
A.	BASIC COMMITMENTS AND LINKAGES.....	66
B.	INSTITUTIONAL FRAMEWORK FOR PROJECT MANAGEMENT	67
C.	ARRANGEMENTS FOR PROJECT EXECUTION AND THE WORK PLAN.....	68
C.1.	Aspects related to the procurement and contracting processes	68
C.2.	Administrative and financial structure of the STPE.....	69
C.3.	Operating arrangements.....	69
C.4.	Technical and managerial compatibility with national systems	69
C.5.	Interface for coordination with the GEF-financed project	70
IV.	PROJECT COSTS AND FINANCING	71
A.	ACCOUNTING AND FINANCIAL MANAGEMENT.....	71
A.1.	Accounts and accounting management	71
B.	FINANCING AND INCREMENTAL COST	72
B.1.	Financing.....	72
B.2.	Incremental cost	73
C.	PROCUREMENT, ACCOUNTING AND AUDITS.....	75
C.1.	Procurement.....	75
C.2.	Auditing.....	75
V.	SUPERVISION, MONITORING AND EVALUATION	76
A.	SUPERVISION	76
B.	MONITORING AND EVALUATION.....	76
B.1.	Objectives.....	76
B.2.	Main characteristics.....	77
B.3.	Monitoring and evaluation system of the national protected areas system (SNAP)	77
B.4.	Assessment of Global Environmental Benefits (GEBs).....	78
B.5.	Evaluations and special studies	78
C.	DETAILED MONITORING AND EVALUATION BUDGET AND OPERATIONS	79
C.1.	Project budget.....	79
C.2.	Organizational mapping of the monitoring and evaluation system.....	79

ANNEXES

Annex 1	Maps
Annex 2	Logical framework
Annex 3	Design and financial structure of the project
Annex 4	Incremental reasoning for GEF involvement
Annex 5	Definition and measurement of the expected Global Environmental Benefits
Annex 6	Objectives of the monitoring and evaluation system
Annex 7	Organization and budget of the project monitoring and evaluation system
Annex 8	Terms of reference for project staff
Annex 9	List of persons interviewed
Annex 10	Payment for environmental services
Annex 11	The Socio Bosque Programme [Forest Partners Programme]
Annex 12	Main objectives of restoration and interventions in the management of forests and degraded land
Annex 13	Information on key components of the landscape mosaic for planning forest landscape restoration (FLR) strategies and activities
Annex 14	Contribution of key landscape areas to an initiative for restoration of the forest landscape
Annex 15	List of projects in the UNDP/GEF small donations programme
Annex 16	Auditing for sustainable forest management
Annex 17	Size of protected areas in Ecuador

TABLES

Table 1	Authorities and mechanisms in the SDGA
Table 2	Consumption poverty and extreme poverty by area
Table 3	Consumption poverty and extreme poverty by province
Table 4	Consumption poverty and extreme poverty in the targeted parishes by canton
Table 5	Levels of consumption poverty and extreme poverty by ethnic origin
Table 6	Estimated poverty and extreme poverty by UBNs in the targeted parishes by canton
Table 7	Ibarra-San Lorenzo Development Project
Table 8	Population, area, and density by parish in the Ibarra-San Lorenzo Development Project
Table 9	Parishes in the Cotacachi-Cayapas Ecological Reserve
Table 10	Parishes in the Cayapas-Mataje Ecological Reserve
Table 11	Estimated area of influence of the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor in the ecological reserves
Table 12	RECC and REMACAM reserves. Population by parish
Table 13	Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor. Population estimates by ethnic group.
Table 14	Timetable of activities to design the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor
Table 15	Linkage between the GEF project and the Ibarra-San Lorenzo project (IFAD)
Table 16	Institutional alignment of the STPE with the National Well-being Plan 2009-2013 and the components of the GEF project
Table 17	Linkage between the strategy for sustainability, conservation, knowledge of the natural heritage and promotion of community tourism and the project's components
Table 18	Main international instruments ratified by Ecuador

Table 19	Involvement and ownership. Results of public consultations with stakeholders in the project area
Table 20	Examples of indicators on the condition of local ecosystems
Table 21	Relative indexes of biodiversity
Table 22	Summary of goods and services provided by different types of forests
Table 23	Harmonization table. Priority areas for the STPE, projects, players, and the Ibarra-San Lorenzo project
Table 24	Institutional context and external cooperation
Table 25	Evaluation of risks and mitigation measures
Table 26	Financing of the overall Ibarra-San Lorenzo Development Project
Table 27	Costs per component
Table 28	Costs by spending category
Table 29	Complementary and substitute project activities
Table 30	Detailed budget for the monitoring and evaluation system

GRAPHS

Graph 1	New institutional context for environmental issues in Ecuador
Graph 2	Environmental spending out of per capita GDP in Ecuador

FIGURES

Figure 1	Influence of changes in the use of natural resources on the provision of environmental services
Figure 2	Environmental problems in the project zone
Figure 3	Productive conservation approach of IFAD/GEF/MAE/STPE
Figure 4	Summary of the project approach
Figure 5	Socio Bosque and the GEF project collaborate for community-led SFM
Figure 6	STPE organization chart
Figure 7	Flow of funds

TEXT BOXES

Box 1	Ecuador's new constitution
Box 2	Economic arguments for sustainable forest management
Box 3	Integrated public sector financial management system
Box 4	How to distinguish between complementary and substitute activities

MONETARY EQUIVALENTS

Monetary unit=United States dollar (US\$)

WEIGHTS AND MEASURES

1 kilogramme (kg)	=	2.204 pounds
1,000 kg	=	1 metric tonne
1 kilometre (km)	=	0.62 miles
1 metre (m)	=	1.09 yards
1 square metre (m ²)	=	10.76 square feet
1 acre	=	0.405 ha
1 hectare (ha)	=	2.47 acres

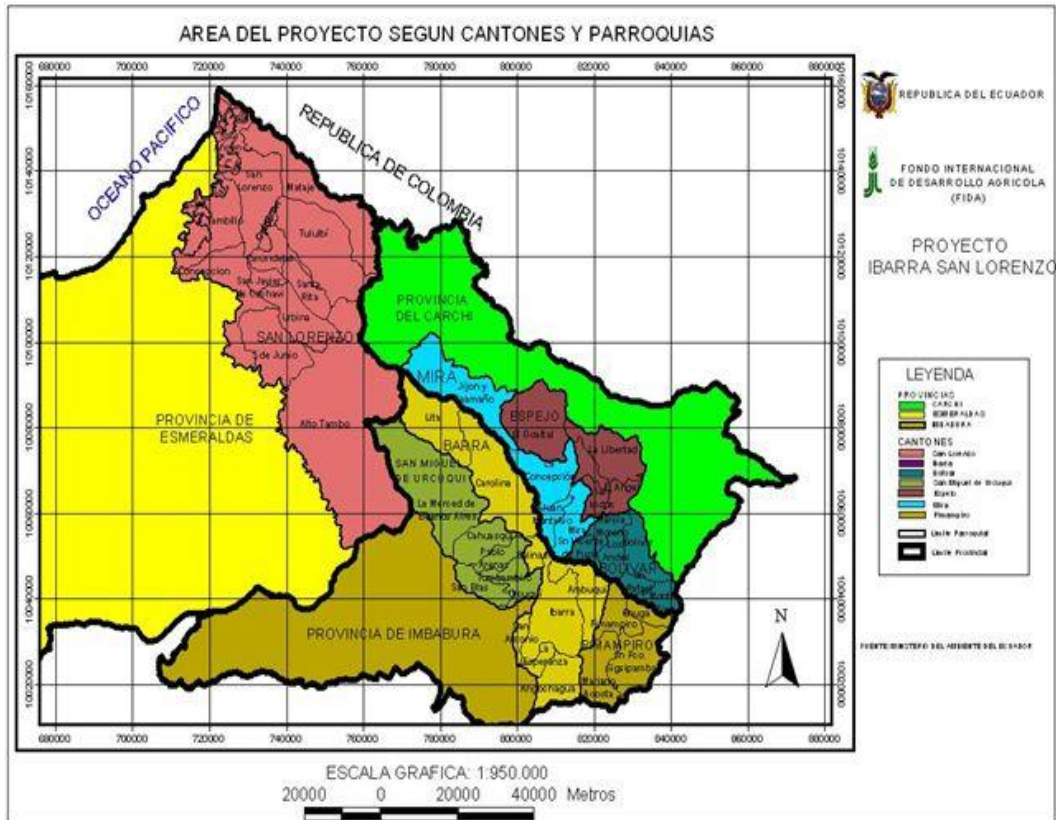
ABBREVIATIONS

AGECI	Agencia Ecuatoriana de Cooperación Internacional [Ecuadorian International Cooperation Agency]
AWPB	Annual Work Plan and Budget
BNF	Banco Nacional de Fomento [National Development Bank]
CBD	Convention on Biological Diversity
CIFOR	Centre for International Forestry Research
CODAE	Corporación de Desarrollo Aforecuatoriana [Afro-Ecuadorian Development Corporation]
CONCOPE	Consortio de Consejos Provinciales del Ecuador [Consortium of Provincial Councils of Ecuador]
FECD	Fondo Ecuatoriano Canadiense de Desarrollo [Ecuadorian-Canadian Development Fund]
FECD	Fideicomiso Ecuatoriano de Cooperación para el Desarrollo [Ecuadorian Trust for Development Cooperation]
GDP	Gross domestic product
GEF	Global Environment Facility
GOE	Government of Ecuador
GTZ	Gesellschaft für Technische Zusammenarbeit [German Technical Cooperation Agency]
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
INEC	Instituto Nacional de Estadísticas y Censos [National Statistics and Censuses Bureau]
ITTO	International Tropical Timber Organization
MAE	Ministerio de Ambiente del Ecuador [Ministry of the Environment of Ecuador]
MAGAP	Ministerio de Agricultura, Ganadería y Pesca [Ministry of Agriculture, Livestock, and Fisheries]
masl	metres above sea level
MCSIE	Ministerio de Coordinación de Seguridad Interna y Externa [Ministry of Internal and External Security Coordination]
MDG	Millennium Development Goal
MIC	Ministerio de Industrias y Competitividad [Ministry of Industry and Competitiveness]
MIES	Ministerio de Inclusión Económica y Social [Ministry of Economic and Social Inclusion]
OIM	Office of Inventory and Mapping (USAID)

PAE	Plan Ambiental Ecuatoriano [Ecuadorian Environmental Plan]
PANE	Patrimonio de Áreas Protegidas del Ecuador [Heritage Protected Areas of Ecuador]
páramos	high Andes tropical ecosystems characterised by native vegetation, predominantly grasses and shrubs
PCU	Unidad Coordinadora del Proyecto [project coordination unit]
PES	payment for environmental services
PIF	project identification form
PNPBV	Plan Nacional para el Buen Vivir [National Well-being Plan]
PRODERENA	Proyecto de Descentralización de la Gestión de los Recursos Naturales en tres provincias del Norte del Ecuador [project on decentralization of natural resource management in three provinces in northern Ecuador]
PTA	project technical advisor
RECC	Cotacachi-Cayapas Ecological Reserve
REDD	Programme for Reduced Emissions from Deforestation and Forest Degradation
REMACAM	Cayapas-Mataje Mangrove Reserve
SDGA	Sistema Descentralizado de Gestión Ambiental [decentralized environmental management system]
SENPLADES	Secretaría de Planificación y Desarrollo Económico y Social [Department of Planning and Economic and Social Development]
SENRES	Secretaría Técnica de Desarrollo de Recursos Humanos y Remuneraciones del Sector Público [National Technical Secretariat for Human Resource Development and Public Sector Wages]
SIG	Geographic Information system [GIS]
SIGEF	Sistema Integrado de Gestión Financiera [public sector integrated financial management system]
SIISE	Sistema Integrado de Indicadores Sociales del Ecuador [integrated system of social indicators of Ecuador]
SNAP	Sistema Nacional de Areas Protegidas [national system of protected areas]
SPPC	Secretaría de Pueblos, Movimientos Sociales, y Participación Ciudadana [Department of Peoples, Social Movements and Citizen Participation]
STPE	Secretaría Técnica del Plan Ecuador [Technical Secretariat of Plan Ecuador]
SUMA	Sistema Unico de Manejo Ambiental [consolidated environmental management system]
UICN	International Union for Conservation of Nature
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNHCR	Office of the United Nations High Commissioner for Refugees
USAID	United States Agency for International Development
WWF	World Wildlife Fund

MAP OF THE PROJECT AREA BY CANTONS AND PARISHES

Republic of Ecuador
SUSTAINABLE MANAGEMENT OF
BIODIVERSITY AND WATER RESOURCES IN
THE IBARRA-SAN LORENZO CORRIDOR



EXECUTIVE SUMMARY

Context

1. The Government of Ecuador, IFAD, and the GEF agreed between 2007 and 2009 to implement a cooperation plan, respectful of the principles of national sovereignty, intended to address problems on local, regional, and continental levels in the country, such as climate change, poverty, and the destruction of culture.
2. The 2009-2013 National Well-being Plan (PNPBV) is the expression of the Ecuadorian Government's policy, whose ambition is to be rooted in a concurrence of wills to reverse inequities and injustices in the country's development. Three quarters of the population suffers from poverty or indigence. Rural spaces and, in them, indigenous and Afro-Ecuadorian populations, suffer the effects of chronic and structural poverty, which weighs most heavily on women.
3. In the case of Ecuador, well-being questions the destruction of nature and its exploitation without thought to inter-generational accountability or to the times required for regeneration and stability. Degradation of ecosystems threatens the way of life of local populations and generates high levels of environmental, political, cultural, and economic conflicts, expressed in struggles between communities that erode regional cohesion and that contribute to pauperization processes that go hand-in-hand with deterioration of natural capital and in rural areas that are vital for farming, indigenous, and Afro-descendent communities.
4. Climate change has also negative impacts on the region. In Latin America, three of the Andean countries rank among the most vulnerable to the threat of climate change, with the losses for Ecuador estimated at 14% of GDP, 7% for Bolivia, and 4.5% for Peru.¹ The rural poor are the most susceptible to climate change, impacts on health (epidemics, water shortages, flooding, pollution), leisure activities (sports, recreation, and open-air activities), ecosystems (loss of biodiversity), human settlements, and the cultural heritage. At the same time, they have few or no opportunities for addressing them.

The Ibarra-San Lorenzo Corridor

5. One of the parts of Ecuador that is most typical in this context is the so-called Ibarra-San Lorenzo corridor, where IFAD is already operating with the Ibarra-San Lorenzo Development Project. This project straddles the mountain and coastal regions around the Ibarra-San Lorenzo highway corridor and covers three provinces (Carchi, Imbabura, and Esmeraldas), seven cantons, and 35 parishes for an estimated area of 5,963 km².
6. Historical factors are at play in the area between Ibarra and San Lorenzo that have governed socioeconomic and cultural relations since the railway was opened up more than 100 years ago and that facilitated the integration of the northern region of the country between the coast, the foothills, and the mountains, creating a corridor of regional flows and networks.
7. The area in question is emblematic in terms of natural resources. For example, in Esmeraldas province at the start of the 1990s, forest cover amounted to 1,080,000 ha or 9% of national forested area and about 15.4% of forest plantations. In 2001, 40.51% of the province was forested, for about 600,000 ha.

¹ University of Louvain, and International Symposium on the Effects of Climate Change, Gijón, Spain

The Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor

8. The Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor presented here is directly integrated into the second component of the IFAD's project regarding natural and environmental resources management, and related to other subcomponents, as is explained in the table below.

Ibarra-San Lorenzo Development Project

Components	Subcomponents		
1. Capacity, citizen's rights, and institutional strengthening	Institution building	Citizenship and access to social benefits	Participative mapping
2. Management of natural and environmental resources	Natural resource management subproject	Training in the management of natural and environmental resources	GEF project: Sustainable management of biodiversity and water resources
3. Development of business ventures and value chains		Support for business development	Financing for business activities
4. Recovery of ancestral knowledge and reaffirmation of cultural identities	Education for culture	Rehabilitation of the tangible heritage	Creative industries and products with identity
5. Management and administration	Covers the entire project		

9. The project will particularly promote the conservation of biodiversity and sustainable management of land and forests in the Ibarra-San Lorenzo corridor, and the continuation and improvement of the main environmental services, benefiting indigenous peoples and local communities and contributing to poverty reduction, social inclusion, and conflict resolution in the project zone.
10. In order to reach the mentioned goal, the project will be organized into four main components:
- Component 1: **Capacity development for the locally-driven sustainable management of natural resources**
 - Component 2: **Catalytic investments for the conservation, restoration and sustainable management of natural resources**
 - Component 3: **Incentives for community-led SFM**
 - Component 4: **Project management**
11. As it was indicated above, the area of activity of the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor corresponds to the area of activity of the Ibarra-San Lorenzo Development Project. However, because of its specific objectives it will primarily influence the buffer zones of two protected areas in the territory—the Cayapas-Mataje Mangrove Reserve (REMACAM) and the Cotacachi-Cayapas Ecological Reserve (RECC).

12. Therefore, the project proposes to directly influence 40% (2,608 km² of the 6,515 km²) of the reserves (including the buffer zones) and 43.7% of the total area of the Ibarra-San Lorenzo Development Project (5,963 km²). The strategy is to focus the project's financial resources on zones that offer an opportunity to improve biodiversity and water resources for an estimated population of 27,000 people or 26.5% of the population in the impact zone. The population receiving direct preferential assistance will extend to the entire population of the corridor.
13. The strategic linkage between the IFAD project and the present operation submitted to the GEF for consideration will allow for an integrated approach to reducing threats and existing pressures on the páramos (high Andes tropical ecosystem characterised by native vegetation, predominantly grasses and shrubs), Andean forests, and tropical humid forests, as well as the mangrove swamps, contributing to the central objectives of peace, development, and poverty reduction on the northern border.

Period, costs and institutional arrangements

14. The Project for the Sustainable Management of Biodiversity and Water Resources will last for five years and will begin starting in the second year of the Ibarra-San Lorenzo Development Project. The total costs of the project will be **US\$ 18.750 million**. The GEF will contribute with **US\$2.7 million** for the Project for the Sustainable Management of Biodiversity and Water Resources, and the Ibarra-San Lorenzo Development Project will on its part contribute with **US\$16.05 million**, from IFAD funds (**US\$12.825 million**), government contributions of **US\$2.442 million**, and a contribution of **US\$783,000** by the beneficiaries.
15. Institutionally, the project will be integrated into the operations of the coordination unit of the Ibarra-San Lorenzo Development Project, which reports to the national executing agency—the Technical Secretariat of Plan Ecuador, which has the rank of ministry and comes under the Ministry of Internal and External Security Coordination.

SUSTAINABLE MANAGEMENT OF BIODIVERSITY AND WATER RESOURCES IN THE IBARRA-SAN LORENZO CORRIDOR

INTRODUCTION

1. The **Project for Sustainable Management of Biodiversity and Water Resources** has been designed as part of the Ibarra-San Lorenzo Development Project and is consistent with the government's policies for the northern border area of Ecuador, which has been declared a priority zone, partly to counteract the internal military conflict in Colombia involving irregular groups that has repercussions for the population living in the Colombian-Ecuadorian border strip.
2. The proposed project is supported by consultations and active and informed participation by the organizations and institutions present in the Ibarra-San Lorenzo corridor, which has aroused expectations, since the project contains lines of actions that cover historical aspirations for citizenship, inter-culturalism, conservation and environmental protection, and the invigoration of local and regional economies.
3. In this search for responses, the project has been structured into three major components and 10 activities to harmonize the intervention, consisting of: (i) improvement of local environmental management capacity which covers organizations and levels of government; (ii) promotion of innovative initiatives for the conservation, restoration, and sustainable management of natural resources; and (iii) incentives for productive conservation based on alternatives that do not diminish the natural capital of communities and peoples who depend on resources found, in particular, in the buffer zones of protected areas.
4. Work on biodiversity is a valuable opportunity for the region to contribute to the conservation of the productive assets of ancestral organizations and peoples such as the Chachis, Awás, and Kechuas and Afro-descendants, whose existence hinges on the conservation and sustainability of renewable natural resources. The proposed intervention by the GEF in the Ibarra-San Lorenzo corridor forms part of international efforts to mitigate the negative impact of climate change, considering that Ecuador is one of the countries that is most heavily affected owing to its equatorial location.
5. The activities to be promoted by the project will reflect and strengthen best practices identified as the result of earlier development processes, and therefore the project will provide continuity for and contribute complementarity to their consolidation.

I. SITUATION ANALYSIS

A. INSTITUTIONAL, LEGAL, AND ORGANIZATIONAL CONTEXT

A.1. Institutional aspects

6. For the purposes of the present document, the key constitutional aspects that the Project proposes to contribute to are: the environmental complex consisting of biodiversity, land, water resources, and population groups, including an understanding of their rights and entitlement to participate. In particular, the following constitutional precepts should be kept in mind (Text Box 1).

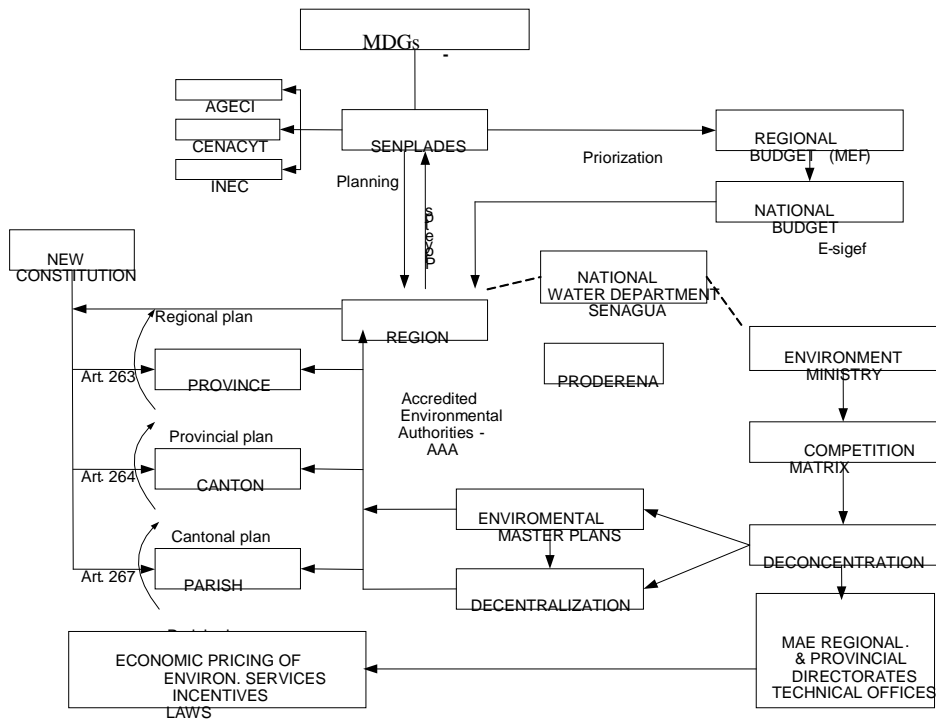
Box 1. Ecuador's new Constitution

- Defines Ecuador as a constitutional state of law and social justice, democratic, sovereign independent, unitary, inter-cultural, pluri-national, and secular.
- Determines that one fundamental human right is the right to water, given that water resources are defined as a strategic national heritage of public use, inalienable, unattachable, imprescriptible, and essential for human life.
- Recognizes the right to live in a healthy and ecologically balanced environment which guarantees sustainability and well-being (sumak kawsay).
- Guarantees indigenous communes, communities, peoples, and nationalities the rights established in declarations signed by Ecuador relating to the maintenance, development, and strengthening of cultural identity, the sense of belonging, and forms of social organization.
- Institutionalizes national equality councils as the bodies responsible for the formulation, mainstreaming, observance, monitoring, and evaluation of public policies that relate to gender, ethnicity, generational conflict, interculturality, disabilities, and human mobility.

Title II, Article 71; Title IV, Article 156; Title VI, Article 276 (paragraph 4); and Article 318

7. According to the redesign of the executive function, the management model and the country's territorial organization as presented today in the context of decentralization of the State and deconcentration of the administration, it is the responsibility of the Ministry of the Environment to play the lead role and consolidate the environmental policies and strategies scattered among different pieces of legislation and documents which in some cases have never been made official and in others have not been adequately disseminated for full compliance. The diagram of government relations (Graph 1) shows the institutional setting in which environmental issues are dealt with, in a system intended to link national policy to the challenges expressed in the United Nations Millennium Development Goals.

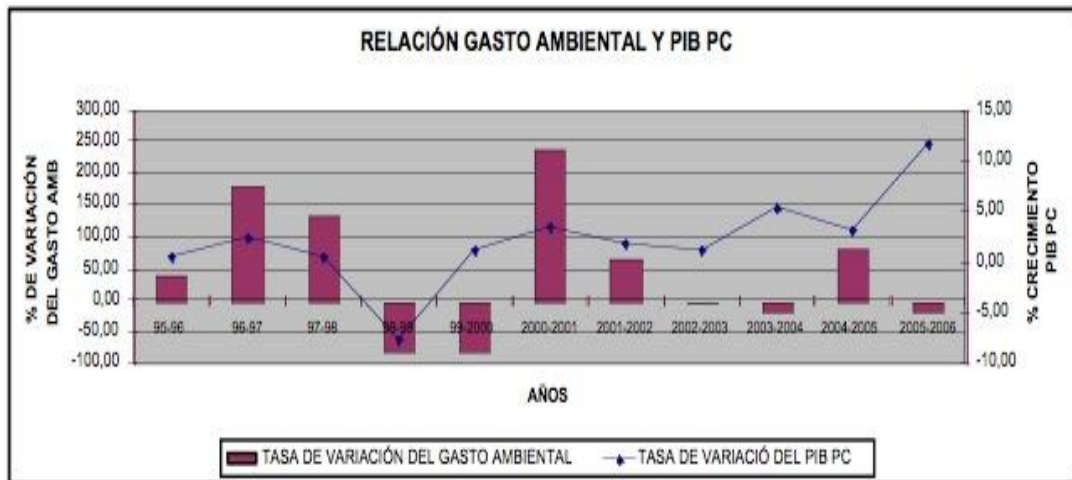
Graph 1. New institutional context for environmental issues in Ecuador



Source: PRODERENA

8. One key element for understanding the institutional context is to look at the budgets spent by the government on the environment. Historically they have been very low when environmental investments are compared to GDP (Graph 2).

Graph 2. Environmental spending out of per capita GDP in Ecuador



Fuente: MEF

Elaboración: OPA - PUCE

Rate of change in environmental spending; Rate of change in per capita GDP.

A.2. Legal aspects

9. The “Updated Environmental Situation Report” (“Actualización del Diagnóstico de la Situación Ambiental en el Ecuador”, Fundación Natura, 1987) already described a limited institutional framework, marked by scattered policies and rules and overlapping environmental responsibilities. Although some aspects have improved since then, others have remained unchanged. The response to this challenge was contained in the Environmental Management Act (1999) which established a national decentralized environmental management system (SDGA), defined as: “...a mechanism for cross-sector coordination, interaction, and cooperation among the different areas, systems, and subsystems for environmental and natural resource management” (Article 5). All the government institutions with environmental responsibilities were folded into the system. To ensure consistency in the environmental policies of these institutions, the act established the National Sustainable Development Council as an advisory body to the country’s president, whose members are drawn from the public and private sectors and civil society (Table 1). The Ministry of the Environment was given the responsibility of leading the system and the National Coordination Commission was established to settle potential conflicts in the exercise of environmental responsibilities.

Table 1
Authorities and mechanisms in the SDGA

Institutions	Functions
President of Ecuador	Approves the Ecuadorian Environmental Plan (PAE) and general environmental policies.
National Sustainable Development Council	Advises the president on the PAE and policies. Defines guidelines for the SDGA.
Ministry of the Environment	Coordinates, regulates, and governs the SDGA. Coordinates the national land management plan. Coordinates the environmental heritage accounts. Administers the national environmental information system. As pertinent, issues or proposes legal and technical environmental standards. Coordinates the introduction of environmental policies into study curricula. Conducts environmental audits. Issues environmental licences.
National Coordination Commission	Directs the SDGA and monitors the decentralization of environmental responsibilities.
Autonomous subnational governments	Implement environmental policies and rules.
Office of the Comptroller General	Performs environmental audits. Oversees compliance with the consolidated environmental management system (SUMA) in public contracts.
Ministry of Economic Affairs and Finance	Coordinates the preparation of environmental accounts.
General Planning Secretariat of the Office of the President	Coordinates the national land management plan. Integrates the PAE into national development plans.
Ministry of Education and Culture	Coordinates the inclusion of environmental policies in school curricula.
Office of the Attorney General	Resolves conflicts in environmental responsibilities when petitioned by the Ministry of the Environment.
Higher Court Chief Magistrates	Hear and rule on environmental violations.

Source: Environmental Management Act

10. Legislation applied by the environmental authority. With regard to *environmental quality*, regulatory efforts have been made such as those in Volume VI of the Unified Text on Secondary Environmental Legislation, which highlights the regulations in the consolidated environmental

management system. The regulations spell out the requisites of the environmental impact evaluation process and the pollution prevention and control process, with technical standards for water, air, and soil, as well as noise, solid waste, and hazardous chemicals. The Unified Text also highlights the responsibilities for controlling environmental pollution that are specifically assigned to municipalities under the Municipalities Act (Gutiérrez y Noboa, 2005).

11. Resolution No. 678 of December 1990 issued by the Ministry of Agriculture and subsequently taken charge of by the Ministry of the Environment prohibits the export of forest species from dry and very dry tropical forests, humid forests, and mangrove swamps.

12. Ministry of the Environment Directive No. 33 of February 1997 is the administrative/legal tool used by the ministry's officials in judging infractions of the Natural Areas Act, subject to the general regulations governing enforcement.

13. The Act in respect of the Special System for the Conservation and Sustainable Development of the Galapagos (1998) represents a notable effort to prioritize and apply an effective framework for the conservation of biodiversity which, despite the problems it has run into owing to conflicts in use with the resident population and with the tourism and fisheries sectors, continues to be a valid and applicable system that serves as a model for managing other areas around the world.

14. Ministry of Environment Resolution No. 105 of January 2000 controls hunting and regulates hunting bans on wildlife in the country, particularly the ban on all species included in Appendixes I and II of the International Convention on Trade in Endangered Species of Wild Fauna and Flora (Article XV) and the ban on hunting of any kind in national parks, ecological reserves, wildlife refuges, biological reserves, and national recreational areas.

15. Executive Decrees No. 3399 and No. 3516 of December 2002 related to the consolidated environmental management system (SUMA) establish fines for pollution, control of water and air quality, and management of hazardous waste. The regulations will make it possible to apply economic environmental sanctions, particularly fines for undue use or degradation of the environment.

B. SOCIOECONOMIC CONTEXT

16. According to the most recent estimates prepared by the Department of Planning and Economic and Social Development (SENPLADES) with support from the UNDP,² poverty levels have fallen compared to 1999, thanks to the recovery of the economy, higher investments in oil and gas, higher prices for oil and petroleum products, and higher remittances and real wages.

17. This favourable environment was affected by the 2009 global crisis and the government designed and applied a series of mechanisms to spur employment and improve income, for example the solidarity bonus, employment partnerships, microfinance programs, the human development conditional cash transfer programme and others to reduce unemployment, which stands at 9.1% in 2010. Although rural poverty was reduced in 1995-2006, the level is still worrisome, since 61.54% of the rural population is poor and almost 27% lives in extreme poverty, as shown in Table 2.

² Second National Report on the Millennium Development Goals (MDGs), Ecuador, October 2007

Table 2
Consumption poverty and extreme poverty by area (%)

	1995		1998		1999		2006	
	Poverty	Extreme poverty	Poverty	Extreme poverty	Poverty	Extreme poverty	Poverty	Extreme poverty
Region								
Coast	36.07	9.06	46.44	16.3	52.85	15.98	40.31	10.85
Mountains	41.73	18.53	42.15	21.77	51.44	24.65	33.75	12.2
Amazon	60.57	23.8	50.04	22.25	n/a	n/a	59.74	39.6
Zone								
Rural	63	27.37	66.75	33.91	75.05	37.68	61.54	26.88
Urban	23.02	4.11	28.72	7.8	36.39	7.99	24.88	4.78
National	39.34	13.6	44.75	18.81	52.18	20.12	38.28	12.86

Source: SIISE-INEC-ECV

18. Indigenous and Afro-Ecuadorian rural communities encounter difficulties in access to resources that range from slight to very serious. In particular, lack of access to land and water limit investment possibilities and lay the groundwork for social unrest.

19. In coastal areas, communities are affected by the expansion of the large landed estates as well as the degradation of mangrove forests caused by over-exploitation.

20. **Consumption poverty.** Consumption poverty affects 38% of the population and extreme poverty 12.8%. The figures are considerably higher in the provinces where the project will be active. In Carchi, Imbabura, and Esmeraldas 54.6%, 43.8%, and 49.5% of the population lives in poverty and the figures for extreme poverty are 24.6%, 20%, and 21.25%, respectively (Table 3).

Table 3
Consumption poverty and extreme poverty by province

Poverty	Carchi	Imbabura	Esmeraldas	National
Poverty	54.60%	43.70%	49.75%	38.28%
Extreme poverty	24.70%	19.81%	21.25%	12.8%

Source: Standard of Living Survey 2006

21. Consumption poverty levels are presented below (Table 4) for the 35 parishes in the project area. As is apparent, 66.5% of the people are poor and 34.4% live in abject poverty. The parishes in Carchi are in the worst situation.³ The province of Esmeraldas is relatively better off although its rates are higher than the national average.

³ See consumption poverty and extreme poverty levels by parish in Annexes 2 and 3

Table 4
Consumption poverty and extreme poverty in the targeted parishes by canton

Province	Canton	Poor		Extremely poor	
		%	Pop.	%	Pop.
Esmeraldas	San Lorenzo	52.8	14,361	18.7	5,101
Carchi	Bolívar	79.4	4,577	49.8	2,875
	Espejo	82.6	752	55.4	504
	Mira	78.4	10,000	53.9	6,870
Imbabura	Ibarra	72.0	8,766	41.1	4,995
	Pimampiro	63.8	8,236	34.2	4,415
	Urcuquí	73.5	10,535	34.1	4,881
Total		66.5	56,301	34.4	29,641

Source: Standard of Living Survey 2006.

22. Poverty affects some ethnic groups more than others. The groups with the highest levels are indigenous (67.8% of them are poor) and Afro-Ecuadorian (43.3%). Both groups exceed national poverty averages (38%), while the level for mestizos is 30.1% and for whites it is 27.4%, as can be seen in Table 5.

Table 5
Levels of consumption poverty and extreme poverty by ethnic origin

Ethnic origin	Poverty	Extreme poverty
Indigenous	67.8%	39.3%
Afro-Ecuadorian	43.3%	11.6%
Mestizo	30.8%	8.3%
White	27.4%	7.6%
National	38.3%	12.8%

Source: Second National Report on the Millennium Development Goals. GOE-United Nations

23. The ethnic variable has a clear impact on the poverty of indigenous and Afro-Ecuadorian groups, with an observable pattern of discrimination that can be verified through wage levels. Average monthly household income for mestizo families is US\$545, while for Afro-Ecuadorians it is US\$400 and for indigenous people it is US\$305. Average per capita monthly income is US\$278, US\$210, and US\$165, respectively.⁴

24. **Poverty measured by unmet basic needs (UBNs).** Poverty measured by UBNs affects 61% of the country's population and extreme poverty by UBNs affects 32%. Although this measurement method is not very sensitive to short-term changes, it is an indicator of the quality of life, since it considers variables such as substandard housing, lack of services and overcrowding, in addition to the economic dependency ratio and the presence of school-age children who do not attend school. In the 35 parishes in the project area, poverty measured by UBNs affects 80% and extreme poverty 49% (Table 6).

⁴ Ethnicity, inequality, and racism. Index of the Technical Secretariat of the Ministry of Social Development Coordination. Information from the Standard of Living Survey 2006.

Table 6
Estimated poverty and extreme poverty by UBNs in the targeted parishes by canton

Province	Canton	Population	Poverty		Extreme poverty	
			%	Pop.	%	Pop.
Esmeraldas	San Lorenzo	33,699	82	27,712	47	15,787
Carchi	Bolívar	7,689	82	6,313	50	3,845
	Espejo	1,151	87	1,000	52	602
	Mira	14,524	78	11,283	49	7,077
	Subtotal	23,364	76	18,596	61	11,524
Imbabura	Ibarra	10,583	80	8,515	48	5,081
	Pimampiro	16,412	84	13,840	62	10,182
	Urcuquí	17,614	73	12,802	43	7,530
	Subtotal	44,609	79	35,157	51	22,793
	Total	101,672	80	81,465	49	50,104

Source: INEC. Population projections 2001-2010

25. As can be seen, poverty measured by UBNs is spread relatively evenly throughout the project area, affecting seven or eight out of every 10 people, and extreme poverty is very high.

C. ENVIRONMENTAL CONTEXT

C.1. National environmental context

26. Ecuador is very diverse geographically, biologically, and culturally, in a relatively small space (256,370 km²). The Amazon and Pacific Basins converge toward the Andes. Their biodiversity is marked by a high degree of endemic species, making Ecuador one of the seventeen most diverse countries in the world. It contains part of two land ecoregions that are known world-wide as “hotspots” of biodiversity—the Chocó biogeographic region, which is found mainly in the north-western part of the country and which, in a much smaller space than the Amazon, contains a similar number of species; and the Amazon slopes of the Andes (eastern zone), where the best preserved tropical forests can be found.

27. The country also has the Galapagos archipelago, which is universally known as belonging to the Natural Heritage of Humanity. Ecuador has more than 20,000 species of plants, 1,500 species of birds, more than 840 species of reptiles and amphibians, and 341 species of mammals. Despite this genetic wealth of species and ecosystems, Ecuador also shares the distinction of having one of the highest deforestation and habitat destruction rates in Latin America. It is estimated that the primary tropical forest occupies less than 20% of the country. The main causes of deforestation include uncontrolled logging and fossil fuel extraction.

28. Although a large public institutional framework has organized and operates the national system of protected areas (SNAP) which has 36 different land areas extending for 48,653 km² and covering 19% of the country, and four marine areas covering an area of 142,205 km² (one of the highest percentages in South America), the measures applied are not sufficient to prevent progressive deterioration of the country's natural resources.

C.2. Description of the problem. Environmental pressures and their causes

29. Ecuador is exposed to a variety of natural threats (earthquakes, floods, landslides, volcanic eruptions, tsunamis, and droughts) on account of the geographic, morphologic, geologic, hydrologic, and climatic conditions related to its geographic location on the active continental rim known as the Pacific Ring of Fire—the zone with the highest seismic and volcanic risk anywhere in the world. Historically it has suffered from severe earthquakes.

30. **Climate change.** Local and regional phenomena such as El Niño, whose apparent increase in intensity and frequency undermines the country's socioeconomic situation, have planted the seeds in Ecuadorian society of some degree of awareness of the need to take steps to confront the potential direct and indirect impact of global warming.

31. Climate change and its potential effects have been studied in Ecuador since the mid-1990s. The country undoubtedly faces a variety of potential risks associated with changes in temperature and precipitation, and possible changes in ocean currents.

32. The glaciers in Ecuador's Andean region are clearly being affected by atmospheric warming associated with climate change and this will continue and speed up as global temperatures rise. Preliminary national studies on this subject (e.g. the First National Communication on Climate Change in Ecuador, 2001), show that the risks associated with climate change, which could increase critically over time, include the availability of water, particularly in the Ecuadorian mountains.

33. **Human pressure.** In addition to the above, different kinds of human pressure exist in the project, such as: (i) the widespread introduction of palm plantations; (ii) the development of small-scale mining, particularly for gold; (iii) the generalized absence of systems to treat domestic waste in communities; (iv) indiscriminate felling by logging companies; (v) the absence of or non-compliance with effective plans for the sustainable forest management; and (vi) the use of unsuitable farming practices on steep slopes, among others.

C.3. Threats to biodiversity and the productive potential of the natural resource base

34. Current pressures on the environment have resulted in rising water and soil pollution which, by modifying the physical and chemical characteristics of those resources, threatens the biodiversity they support.

35. The reduction in plant and animal biodiversity in forests as a result of indiscriminate logging and/or monoculture (eucalyptus, African palm, pine) impacts the productive potential of the affected zones. In general, this pressure leads to a change in land use that has negative consequences for the provision of environmental services. Figure 1 below illustrates the complex impacts of changes in land use on the supply of environmental services by an ecosystem.

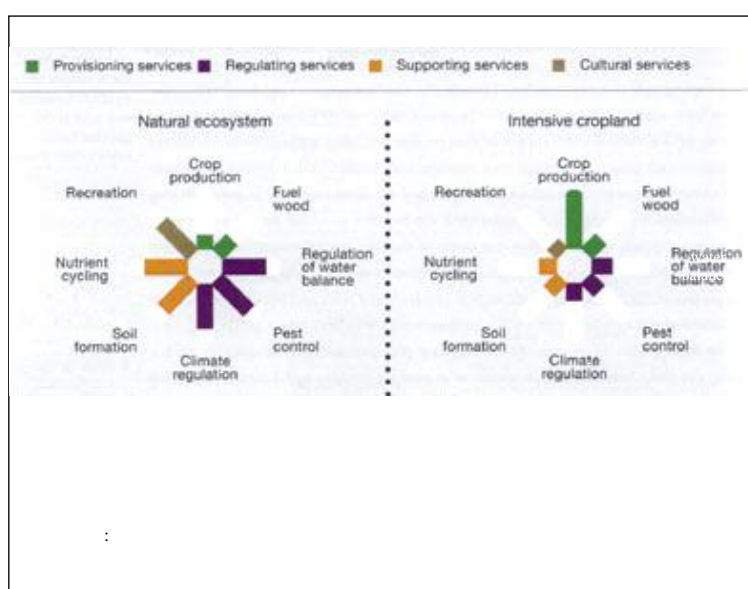
36. The loss of biodiversity can lead to huge biological imbalances capable of affecting the health of natural and productive ecosystems and, consequently, human health. This is compounded by the loss of future possibilities, given that many species can have a potential use value.

37. Deforestation also seriously affects soil, since the disappearance of forest cover favours erosion which, in turn, contaminates and degrades water courses, affecting the specific wealth of an ecosystem. Erosion coupled with the loss of water resources leads to desertification.

38. The degradation of ecosystems threatens the way of life of local populations and leads to high levels of social, environmental, political, cultural, and economic conflict which take the form of socio-environmental, ethnic, and territorial struggles, marked by inequality among the players (communities vs. companies).

39. Other threats include dispossession (displacement of communities through the purchase, invasion, or trafficking in land), violence (presence of paramilitary bands working for companies), deforestation and loss of biodiversity (indiscriminate logging, hunting, trafficking in species, overexploitation of marine resources), pollution (intensive use of agricultural chemicals, inadequate liquid and solid waste removal systems, emission of pollutant gasses).

Figure 1. Influence of changes in the use of natural resources on the provision of environmental services
Comparison of intensive agricultural systems managed for the generation of one ecosystem service and multifunctionality in agroecosystems



Source: Comprehensive Assessment of Water Management in Agriculture, IWMI, 2007

C.4. Obstacles and barriers to rational environmental management

40. Institutional shortcomings, lack of adequate policies, poor governance, and threats to biodiversity are the result of structural causes such as: productive models based on unsustainable extraction patterns, inequity and poverty, population growth, the country's political instability, and macroeconomic policies and structure.

41. In practice, the Ministry of the Environment is not the only agency with responsibilities for the stewardship, coordination, and regulation of the environment in the country. Environmental responsibilities overlap and are scattered among a wide variety of government institutions with their own rules and procedures, which creates a confused picture that makes the sustainable management of natural resources difficult. To a large extent, the legal frameworks allow and/or create regulatory gaps that permit natural resources to be exploited, and therefore they are highly inefficient in the regulation and control of extractive activities.

42. The Regional Directorate of the MAE, according to its officials, is not exempt from this situation. Its problems are worsened by the lack of budget, which causes serious logistical difficulties, and by Ecuador's political instability, which makes make their jobs insecure. Another aggravating

factor is the central government’s political decisions on enforcement of environmental laws and the few NGOs available to coordinate activities with the ministry.

43. Indigenous and Afro-Ecuadorians living in rural areas alongside settlers are an expression of the province’s social, ethnic, and cultural wealth and diversity. These groups constitute the poorest rural and urban populations with scant access to basic services (chiefly education and health care) and their access to formal credit is limited, as is their linkage to marketing circuits for farm products. They are also threatened with the loss of the material foundations that sustain their cultures: territory and management of the natural resources of forests. They have no alternatives for generating income and maintaining their ways of life, which has led to changes in the way they value the forest and spurred them to enter the timber market, which is characterized by middlemen who short-change them on the economic value of forest resources.

44. Cultural changes in the value conferred on forests, insecurity in land tenure, limitations on the exercise of collective and territorial rights, scant application of control measures and sanctions, the sale of rights over the use of communally-owned resources, non-internalized environmental costs, and institutional weaknesses can be reversed through the construction of local capacity to generate long-term processes that modify social, political, and institutional behaviour and the patterns of use and consumption of natural resources.

D. PROJECT AREA AND TARGET GROUPS

D.1. Project area

45. The proposed Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo corridor forms part of a larger initiative known as the Ibarra-San Lorenzo Development Project, financed by IFAD and the Government of Ecuador (table 7). The two are linked through the natural and environmental resources management component.

Table 7
Ibarra-San Lorenzo Development Project

Component	Subcomponent		
1. Capacity, citizen’s rights, and institutional strengthening	Participative mapping	Promotion and support of public policies	Institution building
2. Management of natural and environmental resources	Natural resource evaluation	Subprojects on natural resource management	Sustainable management of biodiversity and water resources
3. Development of ventures and value chains	Support for business development	Development of a solidarity economy	
4. Recovery of ancestral knowledge and reaffirmation of cultural identities	Creative industries	Rehabilitation of the heritage	Education for culture

46. The Project is located in an inter-regional transversal area that partly includes the mountains and the coast, around the Ibarra–San Lorenzo highway corridor. It includes three provinces (Carchi, Imbabura, and Esmeraldas), seven cantons, 35 parishes, and covers an estimated 5,963 km². This area is visualized as the general sphere of action for the project’s four components.

47. Of these 5,963 km², 52% lies in the province of Esmeraldas, particularly the San Lorenzo Canton, 16% in the province of Carchi, and 32% in Imbabura. The estimated population density in the

project area in 2010 was 17 people per km², which is lower than the national average of 55 people/km² (Table 8)⁵.

Table 8
Population, area, and density by parish in the Ibarra-San Lorenzo Development Project

Ibarra-San Lorenzo corridor: Population, area, and density by parish						
Provincia	Cantón	Población (hab)		Total	Superficie Km2	Densidad Hab/km2
		Urbana	Rural			
Esmeraldas	San Lorenzo	19,191	14,508	33,699	3,099	11
Carchi	Bolívar	-	7,689	7,689	135	57
	Espejo	-	1,151	1,151	239	5
	Mira	3,992	10,532	14,524	586	25
	Total	3,992	19,372	23,364	961	24
Imbabura	Ibarra	-	10,583	10,583	697	15
	Pimampiro	6,694	9,718	16,412	440	37
	Urcuquí	4,021	13,593	17,614	767	23
	Total	10,715	33,894	44,609	1,904	23
	Suma total	33,898	67,774	101,672	5,963	17
	Porcentaje	33	67	100		

Fuente: INEC. Proyección cantonal de la Población 2001-2010

48. The area of intervention of the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo corridor overlaps with the area of the Ibarra-San Lorenzo Development Project; however, owing to its special objectives, it will primarily be active in the two protected areas present in the project territory—the Cayapas-Mataje Mangrove Reserve (REMACAM) and the Cotacachi-Cayapas Ecological Reserve (RECC) and their buffer zones—but this does not mean that it will sidestep demand for the project that might arise in the rest of the territory.

49. The Cotacachi-Cayapas Ecological Reserve (RECC) covers an area of 2,436 km² and is located in the provinces of Imbabura and Esmeraldas in a geographic area of an estimated 5,222 km² in 13 parishes, which includes the reserve and the buffer zone. Thirty-three percent of this area (1,742 km²) corresponds to the zone where the project will be active, ranging from the parishes of Alto Tambo in San Lorenzo canton in Esmeraldas to the parishes of La Merced de Buenos Aires, Cahuasquí, Pablo Arenas, and San Blas in Urcuquí canton. The project's activities will be coordinated with reserve management programs and will influence the rest of the reserve. The shading in Table 9 identifies the parishes where the project will be active.

⁵ INEC. Population projected to 2010: 14,204,900 people; urban population 9,410,481; rural population 4,794,419; area of Ecuador: 256,370 km².

Table 9
Parishes in the Cotacachi-Cayapas Ecological Reserve

Localización Parroquial de la Reserva Ecológica Cotacachi-Cayapas			
Provincia	Cantón	Parroquia	Superficie Km2
Esmeraldas	San Lorenzo	Alto Tambo	1.106
		Luis Vargas Torres	734
		Telembí	1.256
Imbabura	Cotacachi	Imantag	212
		Apuela	222
		Plaza Gutiérrez	80
		Quiroga	68
		6 de julio de Cuellaje	182
		García Moreno	727
	San Miguel de Urcuquí	La Merced de Buenos Aires	434
		Cahuasquí	106
		Pablo Arenas	58
		San Blas	38
		Total	5.222

50. The Cayapas-Mataje Mangrove Reserve (REMACAM) lies in the northwestern part of the province of Esmeraldas. Its coastal resources share continental shores and mangrove swamps that are home to great biodiversity and, above all, to species of crustaceans that are one of the main sources of immediate income of the local population. The reserve covers 513 km², is located in the province of Esmeraldas, and includes 7 parishes—San Lorenzo the main town in the canton, Tambillo, Ancón, and Mataje in the canton of San Lorenzo; and Limones, Pampanal de Bolívar and La Tola in the canton of Eloy Alfaro. The total area of these parishes is 1,293 km² which includes the reserve, the adjacent buffer zones, and areas of influence.

51. The project will give priority to four of the seven parishes, meaning that it will cover 67% (866 km²) of the area, as can be seen in Table 10 in the shaded cells. The project's activities will be coordinated with the management plans and its benefits may have an impact on the rest of the reserve.

Table 10
Parishes in the Cayapas-Mataje Ecological Reserve

Localización parroquial de la Reserva Cayapas-Mataje			
Provincia	Cantón	Parroquia	Sup. Km2
Esmeraldas	San Lorenzo	San Lorenzo	266
		Ancón (Pichangal)	61
		Tambillo	235
		Mataje	304
	Eloy Alfaro	Limones	117
		Parte de La Tola	252
		Pampanal de Bolívar	58
		Total	1.293

52. Accordingly, the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo corridor will have its most direct influence on 40% (2,608 km² of the 6,515 km²) covered by the reserve zones (including the buffer zones) and on 43.7% of the total Ibarra-San Lorenzo Development Project (5,963 km²). The strategy is to target the project's financial resources to zones that offer an opportunity to improve the state of biodiversity and water.

Table 11
Estimated area of influence of the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor in the ecological reserves (km²)

Ecological reserve	Total area covered by the parishes	Project's area of influence in the parishes
RECC	5,222	1,742
REMACAM	1,293	866
Total	6,515	2,608

D.2. Target groups

53. The population living in the area of action of the Ibarra-San Lorenzo Development Project in 2010 was an estimated 101,700 people or about 20,300 families, 33% of whom live in the chief towns of the cantons and 67% in the rural parishes; however both groups are linked to rural activities.

54. In the specific case of the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor, the population of the parishes located inside the two ecological reserves and their areas of influence was identified to determine the size of the population to be assisted.

55. The number of people living in areas adjacent to the reserves is estimated to be 27,000 or 26.5% of the total in the larger project. The population to receive direct preferential attention numbers 20,689 people classified as poor, although because of the approach, scope and action of the framework project, the benefits will extend to the entire population living in the corridor (101,700 people).

Table 12
RECC and REMACAM reserves. Population by parish

Provincia	Cantón	Parroquias	No. Hab.	Pobreza		Extrema Pobreza	
				%	No. Hab.	%	No. Hab.
Esmeraldas	San Lorenzo	San Lorenzo	15,556	71	10.967	35	5.491
		Alto Tambo	1.433	95	1.361	71	1.012
		Ancón	1.164	100	1.164	63	738
		Mataje	821	94	770	80	655
		Tambillo	1.579	100	1.579	65	1.018
Imbabura	Urcuquí	La Merced de Buenos Aires	1.560	81	1.256	57	885
		Pablo Arenas	2.045	74	1.517	46	935
		San Blas	2.800	74	2.075	46	1.277
		Total		26.958	77	20.689	58

Fuente. SIISE versión 4.5 (2007). INEC Proyección Población 2001-2010

56. One of the features of the project is its ethnic diversity. In order of size, indigenous and Afro-Ecuadorian groups are largest, as can be seen in Table 13.

Table 13
Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor
Population estimates by ethnic group

Province	Afro-Ecuadorian	Indigenous	Mestizo	Other	Total
Esmeraldas	20,152	1,820	10,379	1,348	33,699
%	59.8	5.4	30.8	4	100
Carchi	7,406	864	15,093	-	23,364
%	31.7	3.7	64.6	0	100
Imbabura	7,450	4,015	31,583	1,561	44,609
%	16.7	9	70.8	3.5	100
Total	35,008	6,699	57,056	2,909	101,672
%	34.4	6.6	56.1	2.9	100,0

Source: INEC: Based on cantonal projections for 2001-2010.

57. **Afro-Ecuadorian communities.** These communities live in the three provinces of Esmeraldas, Carchi, and Imbabura with the largest population in San Lorenzo canton in Esmeraldas, which lies in the project zone. Their main productive activities are fishing, logging, shrimping, and working in palm plantations. They also grow cacao, bananas, rice, and black pepper.

58. **The Awá people.** The Awá of northwestern Ecuador and southwestern Colombia are the ancestral inhabitants of the Chocó biogeographic region and have their own culture and language (Awa-pit belonging to the Chibcha linguistic family). The Federation of Awá Centres of Ecuador (FCAE) is a second-floor indigenous social organization, legally recognized by the Ecuadorian government, that represents 22 legally-established Awá communal centres. In total, they number about 3,500 people living on 120,000 hectares of communal land in the provinces of Carchi, Imbabura, and Esmeraldas, in the so-called “Awa traditional community settlement area.” On 23 January 2006 under Ministerial Directive No. 004, the Ministry of the Environment allocated 99,337 hectares of land in the State Forest Heritage Reserve to the FCAE.

59. The Awá are widely scattered in their territory and it often takes a number of hours to travel from house to house. Once a family is established in a given territory, the land becomes part of its property, which can be inherited by the children when the father dies. Their economic activities are closely related to their natural surroundings and 95% of their territory is covered by primary forest. Family agricultural production units range from 3 ha to 5 ha and are used to grow garden vegetables and tropical fruit. They also work as day labourers on the settlers’ land.

60. Today, the Awa people are under strong outside pressure from logging companies, palm growers, farmers, miners, land traffickers, and others, who wish to extract the natural resources from their territory and take over the land.

61. **The Chachi people.** The Chachis, also known as Cayapas, live in the province of Esmeraldas. In San Lorenzo canton in the project zone they have settled in the community of La Ceiba on the banks of the Tululbí river. The Ecuadorian government has established the Cotacachi-Cayapas Ecological Reserve in their territory, where communities settled in the northern zone live. Communities also exist in the area of influence of the Cayapas-Mataje Ecological Reserve, including the Mache-Chindul Ecological Reserve (which is outside the project zone) where a protective forest is located that belongs to the Chachi people.

62. According to a study conducted by the Chachi Federation with support from the Indigenous and Afro-Ecuadorian Development Project (PRODEPINE) this ethnic group numbers 8,000 people grouped into 1,500 families and just a tiny fraction of them live in the project area.

63. **The settler population.** Migration from Manabi and Loja to the province of Esmeraldas began in the 1950s, spurred by banana production. The flow increased with the promulgation of the First Agrarian Reform and Settlement Act in 1964. In the 1980s and 1990s more settlers arrived with the extension of the highway system. Agriculture is their main economic activity. Extensive livestock farming requires large investments, security in land tenure, and a sufficient amount of land, which only a very few possess.

64. The settlers have a family-based economy and their productive unit is the farm, understood as a parcel of land where they raise crops and livestock. This vision runs counter to the vision of the Afro-Ecuadorian and indigenous peoples for whom the land is a space where plants and animals breed, which is the fundamental source of life on which they sustain and recreate their cultural practices. In quantitative terms, the settlers form the largest group in the project zone although they have no organizations that transcend the level of unions, cooperatives, or pre-cooperatives established to reflect short-term demands for access to land.

E. ENVIRONMENTAL PROBLEMS IN THE PROJECT ZONE

65. The Project area borders with Colombia, and includes the provinces of Esmeraldas, Carchi, Imbabura, Sucumbíos and Orellana. The region has been singled out as a strategic zone for intervention by the government, donors, and the United Nations System, given its special characteristics which make it particularly vulnerable and worthy of priority attention, including: (i) a high poverty level and a long-standing shortfall in services and basic social infrastructure; (ii) deterioration in competitiveness and productive employment; (iii) strong pressure on natural resources, particularly forest resources; and (iv) the high levels of violence and the humanitarian crisis in Colombia with which it shares a common border.

66. On the coast, the Project will act in the province of Esmeraldas, completely covering San Lorenzo canton, which includes the coastal area and the foothills on the western side of the Andes. The project will intervene in 13 parishes—San Lorenzo, an urban parish, and 12 rural ones in which community-influenced geographic areas will be identified. The canton has a complex network of estuaries and islands surrounded by mangrove swamps that form part of the Cayapas-Mataje Mangrove Reserve (REMACAM). The area of action in this zone covers 3,100 km², where nearly 34,000 people live.

67. In the mountains and the intervening valleys, the Project will act in parts of the provinces of Carchi and Imbabura. It includes the dry zones in the Chota and Salinas valleys and the area of influence of the Mira river up to the height of the Alto Tambo, mainly characterised by the presence of Andean cloud forest. In Imbabura, the project will be implemented in three cantons (Ibarra, Pimampiro, and Urcuquí). In Carchi, it will be implemented in another three cantons (Bolívar, Espejo, and Mira). The area of action in this zone covers 2,865 km², with a population of about 65,000.

E.1. Biophysical features of the project zone: A. Andean region (Carchi, Imbabura)

68. **Topography.** The Pimampiro-Alto Tambo corridor lies in the northern part of the country, running from San Francisco Sigsipamba on the eastern slopes of the Andes following the course of the Chota and Mira rivers, to the Alto Tambo in Esmeraldas in the western cordillera. This strip is about 100 km long and lies between 2,600 m and 800 m above sea level (masl).

69. The main physiographic feature that identifies this zone is the valley irrigated by the Chota-Mira rivers, which drains westward making a deep cut in the mountains on the western side of the Andes. The valley, which is straight, cuts through steep and eroded ravines whose bottoms lie 1,800 masl upstream in the southeast and 1,400 masl downstream in the northwest. On the western slope, this valley forms a 30 km-long canyon, which allows hot dry air from the coast to penetrate, which contributes to the semi-desert nature of this valley and its perimeter.

70. The floor of the valley lies between 1,600 masl in the eastern sector and 1,200 masl in the La Concepción sector, which is the entrance to the throat on the western slope. This valley has a dry climate, discontinuous shrubby coverage, and very broken terrain, all of which favour erosion, which predominates over soil formation processes.⁶

71. **Climate.** In the Andes and the inter-Andean alley (Avenue of the Volcanoes) there is always more than 1,000 hours of sunshine a year, except in the rainiest places (outer flanks of the mountains). Annual sunshine ranges from 600 hours to 1,400 hours between 500 masl and 1,500 masl, while ranging from 1,000 to 2,000 hours between 1,500 masl and 3,000 masl. The values can be higher in more elevated areas.

72. In the upper Chota–Mira valley average annual rainfall exceeds 1,000 mm (1,065 mm in Sigsipamba, 1,080 mm in Mariano Acosta with 195 and 120 days of rainfall a year, respectively). In the Lita sector, average precipitation exceeds 3,230 mm distributed over 300 days (Winckell, 1997).

73. In the Andean region temperature is linked to height. Between 1,500 and 3,000 masl averages range from 20°C to 8°C. Absolute maximums range from 30°C to 22°C and minimums from 5°C to minus 4°C. In the project region, the climate is humid megathermal tropical (Lita–Alto Tambo), found on the outer slopes of the two ranges, between 500 and 1,500 masl approximately.

74. The humid to semi-humid equatorial mesothermal climate is the most typical of the inter-Andean zone. Average temperatures range from 12°C to 20°C. On the slopes that are less exposed to the sun they can be lower, although minimum temperatures rarely fall below 0°C and maximums do not exceed 30°C. Relative humidity ranges from 65% to 85%. Annual rainfall ranges from 500 mm to 2,000 mm and is distributed in two rainy seasons—from February to May and October to November. The main dry season runs from June to September and is generally very pronounced.

75. The semi-arid equatorial mesotherm (Lita) and the dry equatorial mesotherm (Chota) have average temperatures between 12°C and 20°C and little difference between summer and winter. Annual rainfall is less than 500 mm. In the valley, the accumulation of relatively cold air which is therefore very dense helps to create fairly stable climate conditions—the sky is generally clear, relative humidity lies between 50% and 80% and there is always more than 1,500 hours of sunshine a year.

76. **Soil.** The Chota-Mira river basin is formed of volcanic sediment and therefore the fertile layer is relatively thin and highly exposed to erosion. Farming has been developed along the banks of the Río Chota, since they are covered with sediment carried by the river.

⁶ Winckell A. et al. 1997. Las Regiones y Paisajes del Ecuador. ORSTOM. Quito

77. The depth of the sediment in the Chota-Mira valley is variable, with a sandy texture prevailing that is low in organic matter but rich in other minerals. This means that the valley retains very little moisture. The soil in this valley has been classified as recently formed and in some parts the surface is rock strewn. The arable layer in the valley averages 25 cm in depth and on the slopes it ranges from 0% to 6%.

78. The environmental factors (wind and water erosion) and anthropomorphic factors (intensive farming and deforestation in the upper watershed) have gradually worn out these soils. The landscape in the valley is semi-desert and is creeping into the green cultivated areas that generally lie on the banks of the river owing to systematic erosion that ruins soil quality. Generally speaking, in the northern mountains where the provinces of Carchi and Imbabura are located, soils formed from volcanic ash predominate with varying depths, running transversal to and parallel with the mountains.

79. The soil in the zone is continually rejuvenated by erosion. It is scantily evolved and very shallow. Locally it is associated with gentle reliefs where the volcanic ash has not eroded, and with deeper isohumic soils and sandy loam. In the higher parts, perhydrated andosols and rejuvenated desaturated andosols can be found, particularly in the upper reaches of the Lita–Alto Tambo and Goaltal zones. Sandy and sandy loam soils lie atop stony substrata on the banks of the Chota river.

80. **Water.** On the south side of the Mira watershed, the water system is composed, mainly of the Ambi, Tahuando, Lita, Cristal, and San Vicente rivers. The Cristal and Lita rivers originate in the RECC. The San Gabriel river is found on the northern edge of the watershed, which originates in the El Ángel páramos and flows into the Pisquer river which, in turn, flows into the Chota whose headwater lies in the Pimampiro cloud forest. The El Ángel river, which is formed by the union of the Mal Paso and Bobo rivers, runs into the Chota on its right bank.

81. The Mira river watershed forms the northwestern corner of Ecuador. In Ecuador the watershed covers about 7,100 km², with 59% sharing more or less common features with the northern part of the Ecuadorian Andes structure and the remaining 41% forming part of the western slopes.

82. The Chota river is one of the longest in the province of Imbabura. It forms the northern border between the provinces of Imbabura and Carchi. After it flows through Ibarra canton, the river takes the name of Mira and flows toward the Pacific ocean in Colombia. The Chota river has four tributaries: Río Escudillas, Río Chamachán, Río Blanco, and Río Pisquer. Río Pisquer in turn, has Río Palaurco (also known as Palauco) and Río Molinoyacu as tributaries. The town of Pimampiro lies in the upper watershed of the Río Pisquer in the Río Palaurco sub-basin. Water from Río Palaurco is used for irrigation and human consumption in Pimampiro. The headwater lies in the páramos, specifically in the Angococha páramos (Ecodecisión – IIED, 2002).

E.2. Biophysical features of the project zone: B. Coastal region (Esmeraldas)

83. **Topography.** San Lorenzo canton lies in the country's northern coastal region. It runs to the west of the Andes below 900 masl to the Pacific coast. It is located on the northern border of the province of Esmeraldas, 180 km from the provincial capital (Esmeraldas) and 320 km from the country's capital. On the north it forms the boundary with Colombia, to the south with Eloy Alfaro canton, to the east with the provinces of Carchi and Imbabura, and to the west with the Pacific ocean.

84. Two large physiographic features have been identified in this zone. The first is the coastal region and, in the eastern part, the western slopes of the Andes range. Geomorphologically, the coastal area is characterized by monotone modelling of the surrounding reliefs of small and medium hills with moderate slopes with grades of no more than 40%. Almost all the area lies between 30 masl and 150 masl and it is necessary to go about 50 km inland to reach heights of 300 m at the foot of the

western slope of the Andes. The cinder cone on the Río Mira, which is 750 m high in the Alto Tambo is the exception to this uniformity.⁷

85. San Lorenzo canton has three different types of relief: coastal sedimentary, the marine plane and the river valleys on the Cayapas and Mataje rivers, and the low foothills in the western cordillera in the zone that borders with the provinces of Imbabura and Carchi.

86. Rainfall is generally high and relatively well distributed. Close to the coast it averages from 2,000 mm to 3,000 mm, increasing rapidly toward the foothills where it exceeds 3,000 mm (values of up to 3,495 mm in Cayapas, 4,155 mm in San Javier (1964-1972); in Awá territory rainfall of up to 4,000 mm a year has been reported. Maximum precipitation occurs between January and May and the minimum in November (Winckell, 1997).

87. On the coast, the sun can shine up to 1,000 hours a year; inland it shines for an estimated 800 hours. The average temperature in the region ranges from 23°C to 26°C. This relative uniformity in climate and humidity influences the vegetation, whose climax is the dense humid forest, and iron lixiviation processes with deep meteorites in the rocks and the formation of alterites (Winckell, 1997).

88. The mangrove area (Cayapas–Mataje) occupies a strip about 20 km wide composed of river-marine land created by coastal marine deposits and deposits from the different rivers that discharge there (Santiago, Mataje) forming a large estuary environment marked by a network of interdependent, meandering canals. The soil varies in texture, is permanently humid and highly saline. Salt deposits—flat extensions within the mangrove swamps—are frequent. Sandy deposits of marine origin are also present, which contain shell fragments and also receive contributions from rivers. They make up more or less continuous strips.

89. **Soil.** In the western part where the RECC is located, the soil is formed by volcanic ash whose distribution is continuous (desaturated andosols, perhydrated andosols, and black desaturated andosols) which are found in the inter-Andean zone and high in the mountains. On the outer western slope, the soil is formed of volcanic ash with continuous coverage (desaturated andosols, dark brown). In the lower area shared with Esmeraldas, the soil is formed of volcanic ash (perhydrated andosols) with a high moisture content, but soils formed from the breakdown of ancient rocks are also present.

90. In the lowest-lying areas in San Lorenzo canton a different type of soil is found formed from the breakdown of ancient rocks, with the presence of minerals. Shallow yellow or reddish soils are present. The soils are humid, with a significant presence of minerals, and they are ferraltic and pseudo-ferraltic (yellow) in type. In a small strip along the border with Colombia, there are soils formed by volcanic ash (desaturated and perhydrated andosols) that are yellowish coffee-coloured. In the area of influence of the lowland river system (the Cayapas, Santiago, San Miguel rivers, etc.) the soils are alluvial, with average saturation and undifferentiated texture (hydromorphic and saline). In the transition toward lower-lying areas, the soils are formed of ancient rock (red ferraltic) and in the lowest-lying areas (about 400 masl) the soil derives from ancient rock and is deep and soft.

⁷ Winckell A. et al. 1997. Las Regiones y Paisajes del Ecuador. ORSTOM. Quito.

91. **Water.** In the area of interest, there is a variety of hydrographic characteristics and water regimes. Generally speaking, the watersheds of the Mira (pluvial, inter-Andean) and the Cayapas (pluvial, tropical, very humid in the north), and part of the San Lorenzo are distinguished as an area with semihumid tropical rainfall. In this last site, the amount of rainfall varies widely, ranging from 500 mm to 2,000 mm a year and is irregular from year to year. In the case of the Cayapas watershed, rainfall exceeds 3,000 mm a year and can be as high as 5,000 mm in some years. In the northern Andes, average annual rainfall does not exceed 500 mm (op. cit.).

92. In the Ibarra-San Lorenzo corridor, this part of the RECC runs from heights of over 4,000 metres to lowlands, i.e. from the sites where most of the water originates—páramos and wetlands—at the headwaters of the rivers to the lowest areas where the river flow increases thanks to the contribution of their tributaries.

93. The great Cayapas–Santiago watershed comprises the sub-basins of the Santiago, Agua Clara, San Miguel, and Cayapas rivers that lie in the western part of the RECC. This water system covers a large area.

94. The hydrographic network of the Mataje is born in the Alto Tambo. Its mid-area constitutes the border with Colombia and forms part of the binational Mira-Mataje watershed.

95. The Mataje, Santiago, and Cayapas flow into Bahía de Ancón de Sardinias and form a large estuary system which includes the San Lorenzo archipelago in Esmeraldas which has 421 km of coastline and an intricate network of estuaries and canals. The Santiago-Cayapas watershed covers a total area of 7,100 km², with an average water flow of 34,130 m³/sec.

96. **Biodiversity and endemic species.** The mountain forests in western Ecuador maintain a large number of species, many of them endemic. Twenty-five percent of the country's flora grow in El Chocó, or about 6,300 plant species, 13% of which are endemic. The region is also home to more species of palm trees than anywhere else in the world. Ecuador's northwest coast is an extension of Colombia's Chocó and contains humid rainforests and specialized plant life.

97. Many of the endemic species in the project zone are distributed over small areas, which makes them particularly vulnerable to extinction.

98. From the standpoint of biodiversity, Ecuador has many endemic species. It is ranked as one of the 17 most mega-diverse countries in the world.⁸ It is the seventh most biodiverse country and the first when biodiversity is compared to its relative size. It is also one of two land ecoregions known as global "hotspots" of biodiversity: the Choco biogeographic region, and the Amazon slopes of the Andes. Part of the project area is located in one of these hotspots—Choco-Darién.

99. The Ecuadorian Chocó maintains 25% of the country's flora or approximately 6,300 plant species, including 13% of the 20% of endemic species. The region is also home to more species of palm trees than anywhere else in the world. The mountain forests in western Ecuador also harbour many species and high levels of endemic ones. Many of the endemic species in this area are distributed over small zones, which makes them particularly vulnerable to extinction.

100. The Awá ethnic reserve is located in the northwestern part of the county, in the provinces of Esmeraldas, Carchi, and Imbabura. The territory lies in the western foothills of the Andes and covers 115,000 ha. The reserve has a very high level of biodiversity, including two or three centres of endemic species. Of the 25 zones in Ecuador classified by Cañadas,⁹ 11 lie in the Awá region, which is

⁸ Mega-diverse countries shelter an extraordinarily high percentage of the planet's diversity. Seventeen countries contain between 60% and 70% of all the world's biodiversity.

⁹ Cañadas-C., L. (1983). El mapa bioclimático y ecológico del Ecuador. Ministerio de Agricultura y Ganadería, Programa Nacional de Regionalización (MAG-PROMAREG).

formed of steep areas in the western Andean foothills and zones toward the coast. The region is estimated to contain 6,300 species of vascular plants, 1,500 of them are possibly endemic (20%). The adjacent region in Colombia may have an additional 6% of endemic species.¹⁰

E.3. Present situation: Baseline

101. **Current extent of degradation of land, forests, and biodiversity.** The Andean forests are among the most threatened in Ecuador. Although destruction of mountain ecosystems began prior to the arrival of the Spaniards and continued during the early decades of their stay, a large part of the destruction has taken place in recent years because of the opening up of roads and the expansion of the agricultural frontier. Collection of firewood is possibly the main reason for the extinction of certain communities of trees and shrubs. Burning is also very important and was apparently a determining factor in the current distribution of the grassy areas (pajonales) in the páramos. Between 1999 and 2003, the remaining forest cover shrank by 8.6% owing to changes in use.

102. In the central part of the inter-Andean basin, native vegetation has been replaced by crops, pastures, exotic forest plantations, and urban zones. The region suffers from severe erosion. Just 2% of the original vegetation remains, generally in high zones with difficult access. The expansion of the agricultural frontier in the Andes exerts pressure on the cloud forests and the dry forests and on the páramos. In the middle parts, natural vegetation has virtually disappeared.

103. The arid ecosystem present in the Chota valley is highly deteriorated. Intensive farming in the valley has destroyed most of the dry forest, leaving only vestiges. Felling of the remaining trees to produce charcoal and to expand the agricultural frontier into steep slopes has accentuated the deterioration. Soil that is not protected by plant cover is exposed to wind and rain erosion. Monoculture and the burning of sugar cane worsen the physical and biological characteristics of the soil and its fertility. This is compounded by the scarcity and inappropriate use of water. In general, the arid and dry ecosystems are underrepresented in the national system of protected areas (SNAP).

104. A similar situation, although less advanced, exists in the coastal areas of the Ecuadorian Chocó, where agroindustrial crops and settlements are doing away with the tropical forests and mangrove swamps (except for the areas protected under the SNAP), particularly the Cayapas-Mataje Mangrove Ecological Reserve (REMACAM) where mangroves have so far been remarkably protected in comparison to adjacent areas in Esmeraldas province. The REMACAM contains some of the most important mangrove swamps in the world because of the height of the trees and the state of conservation.

105. The last vestiges of the original coastal forest in the province of Esmeraldas on the northwest border are threatened by African palm and banana plantations and livestock operations. Deforestation in that area occurs at the rate of 4.1% a year (Clirsen - Geomática, 2008) mainly in San Lorenzo canton owing to the spread of palm plantations and logging, which accounts for 25% of the total in the province. However, the Cayapas-Mataje Mangrove Ecological Reserve (REMACAM) contains some of the most important mangrove swamps in the world because of the height of the trees and the state of conservation.

106. Human pressure on natural ecosystems such as páramos, western forests, mangrove swamps and others, means that their biodiversity, valuable genetic resources, and natural capacity for water capture and regulation are deteriorating rapidly in the zone. The growing scarcity and poor quality of the water resource is, together with water pollution, a serious problem that is beginning to be felt with grave consequences in the provinces of Carchi and Imbabura, particularly in Pimampiro, the Chota valley, and Salinas, and is turning into a potential focus of conflicts. There are no up-to-date water resource

¹⁰ <http://www.deudaecologica.org/modules.php?name=News&file=print&sid=132>

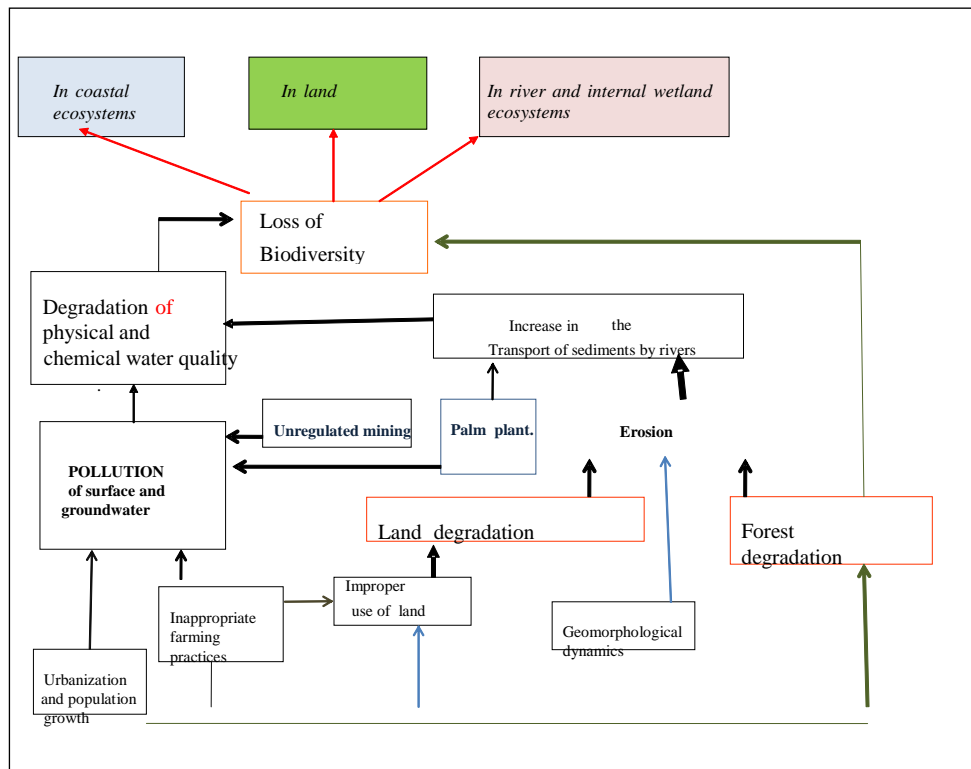
inventories because of conflicting jurisdictions among the institutions with responsibilities in this field.

107. Indiscriminate deforestation leads to permanent and continuous deterioration of natural forests, affecting their original size and quality and their capacity for natural regeneration, whose effects are apparent in the following:

- Elimination of climax vegetation—i.e. the natural vegetation that is typical of these sites.
- Destruction of forests with commercial potential for timber and other natural products, whose rational use would ensure continuous and sustained production.
- Destruction of the potential of forests as water regulators and their potential for hydroelectric generation.
- Damage and destruction of civil, agricultural, and other infrastructure owing to landslides and washouts.
- Danger of extinction of species of wild plants and animals when their natural habitat is disturbed or destroyed.
- Destruction of scenic and recreational values.

108. Various programs and projects have been carried out in the zone with the goal of improving natural resources management and alleviating rural poverty—two objectives that are closely related. These initiatives are briefly described in Part E of this report. The present project attempts to draw on the lessons learned from those initiatives and achieve synergies with government actions in these problem areas.

Figure 2. Environmental problems in the project zone



F. PROJECT FORMULATION PROCESS. INSTITUTIONS AND ORGANIZATIONS INVOLVED

109. The Project for the Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor is the result of cooperation between the government of Ecuador (GOE) and international technical and financial cooperation that began in 2007 with a request from the GOE to IFAD to identify an initiative that is now known as the Ibarra-San Lorenzo Development Project. It was preceded by a request from the Secretaría de Pueblos, Movimientos Sociales y Participación Ciudadana del Ecuador (SPPC) [Department of Peoples, Social Movements, and Citizen Participation of Ecuador] that led to the preparation of a concept note agreed on with the GOE, which was approved in 2008 by IFAD as a preliminary step to designing the project.

110. An IFAD project mission from the Latin America Division (LAC) travelled to Ecuador and organized meetings with the Ministry of Finance, the SPPC, the Corporación de Desarrollo Afro-Ecuadorian (CODAE) [Afro-Ecuadorian Development Corporation], SENPLADES, the Ministry of Agriculture, Livestock, and Fisheries (MAGAP), the Ministry of the Environment, the Technical Secretariat of Plan Ecuador, the Ministry of Internal and External Security Coordination, the Resident Coordinator of the United Nations Organization in Ecuador, and an official from the Peace and Security Division of the United Nations Development Programme (UNDP).

111. The IFAD mission held consultations with directly-interested parties in the project zone in Chota, La Concepción, and San Lorenzo, who confirmed the approaches taken in the concept note on the project. The results were discussed with officials from the Public Credit Branch of the Ministry of Finance.

112. On 19 June 2008, the final design document was examined by an IFAD review panel and again on 8 October 2008 by an IFAD internal review committee.

113. In parallel with this process, in February 2008, a programme manager from IFAD's Environment and Climate Division¹¹ (ECD) visited Ecuador and met with authorities from the Ministry of the Environment and GEF Focal Point in Ecuador. The national authorities expressed their agreement with the legal proceedings relating to the donation, which are required to conform to certain procedures agreed on by the Ministry of the Environment and the GEF.

114. After the meeting, IFAD ECD and the LAC helped to prepare the Project Identification Form (PIF) that was submitted to the Ministry of the Environment for revision and approval. The document was endorsed by the MoE in July 2008, and approved by the GEF Council in November 2008, for a total grant of US\$2.7 million¹².

115. On 29 April 2009, the Ecuadorian International Cooperation Agency (AGECI), which reports to SENPLADES, issued a favourable opinion on the GEF donation.

116. In November 2009, IFAD's Executive Board, at the request of the GOE, approved a loan for Ecuador of approximately US\$12.875 million and in December of the same year, SENPLADES confirmed the priority of the Ibarra San Lorenzo Development Project, which includes the GEF-financed Project for Sustainable Management of Biodiversity and Water Resources.

¹¹ Jesús Quintana, Programme Manager, Environment and Climate Division, IFAD.

¹² IFAD, in coordination with the MAE, the GEF Focal Point in Ecuador, discussed a possible complementary proposal to the Ibarra-San Lorenzo Project during 2007 and 2008, developing a concept note (PIF) during the first half of 2008. The Minister of the Environment, Marcela Aguiñaga, approved the PIF, which was entitled "Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor (Ecuador)", in August 2008 and it was subsequently approved by the GEF Council in November 2008, for US\$2.7 million, as a non-reimbursable contribution.

117. In January 2010, IFAD carried out an official mission to Ecuador to design the complementary proposal to the Ibarra-San Lorenzo Development Project¹³ holding meetings with authorities from the MAE, CODAE, SENPLADES, MAGAP, and the Ministry of Finance and afterwards travelling to the project zone where it held meetings and workshops with institutional players and social organizations in the towns of Ibarra, El Chota, Lita and San Lorenzo, whose names and venues are listed in Annex No. 12

118. The aide-memoire signed by the Technical Secretariat of Plan Ecuador (STPE) and IFAD established a tentative timetable of activities up to completion of the design and approval of the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor.

Table 14
Timetable of activities to design the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor

#	Stage	Date (deadline)	Responsible
1	Formulation mission	January 2010	IFAD
2	Completion of documents. Internal review IFAD	February 2010 (26-03-10)	IFAD
3	Review by GOE. Approval	April 2010 (24-4-10)	STPE
4	Translation into English	1-15 May 2010	IFAD
5	Technical review panel IFAD	End of May	IFAD
6	Formal presentation to the GEF	June 2010	IFAD
7	Technical review GEF Final approval GEF (estimate)	July-August End of August 2010	GEF
8	Preparation and negotiation of the agreement Signature (estimate)	September-October December	STPE-IFAD
9	Start of activities (estimate)	December 2010/January 2011	STPE-IFAD

¹³ The mission was composed of Jesús Quintana, Program Manager, Environment and Climate Division, IFAD and Mission Leader; Hugo Dután, Formulation Coordinator; Santiago Camino, Institutional Expert; Jean Payen, Environmental Expert; and Doris Ortiz, Natural Resource Specialist. The counterparts were Pablo Velasco, Mauricio Terán, and Marco Ballesteros of the STPE.

II. PROJECT STRATEGY

A. PROJECT JUSTIFICATION AND DESIGN

119. The Project is fully justified on the basis of the environmental conditions described above, which include a series of threats to the different associated species of flora and fauna that also create serious socioeconomic problems for almost everyone living in the zone. Scant government presence and limited opportunities for economic development by the rural poor also justify the proposed intervention.

A.1. Design of the operation

120. The Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor (GEF Project) is associated to the Ibarra-San Lorenzo Development Project supported by IFAD. The latter's general objective is to help reduce poverty and improve the living conditions of Afro-Ecuadorian, indigenous, and farming communities in the project area; such an endeavour will be aligned to the borrower's duty to plan national development, eradicate poverty, promote sustainable development, and equitably redistribute wealth and resources to make good livelihoods. With the co-financing from the GOE and IFAD, the project proposes to facilitate and enable families and communities in the project area to develop their natural, social, and cultural activities, and access the local and regional labour markets. The target groups are mainly organizations of Afro-Ecuadorian and indigenous groups and mestizo farmers.

121. The strategic linkage between the IFAD project and the present operation submitted to the GEF for consideration (Table 15) makes for an integrated approach to attenuating existing threats and pressure on the páramos, Andean forests, and tropical wetlands as well as the mangrove swamps, and will contribute to the central objectives of peace, development, and poverty reduction on the northern border.

122. In particular, the GEF Project will promote the conservation of biodiversity and sustainable management of the land and forests in the Ibarra-San Lorenzo corridor, and the preservation and improvement of the main environmental services, benefiting the indigenous peoples and local communities, and contributing to poverty reduction, social inclusion, and conflict resolution in the project zone.

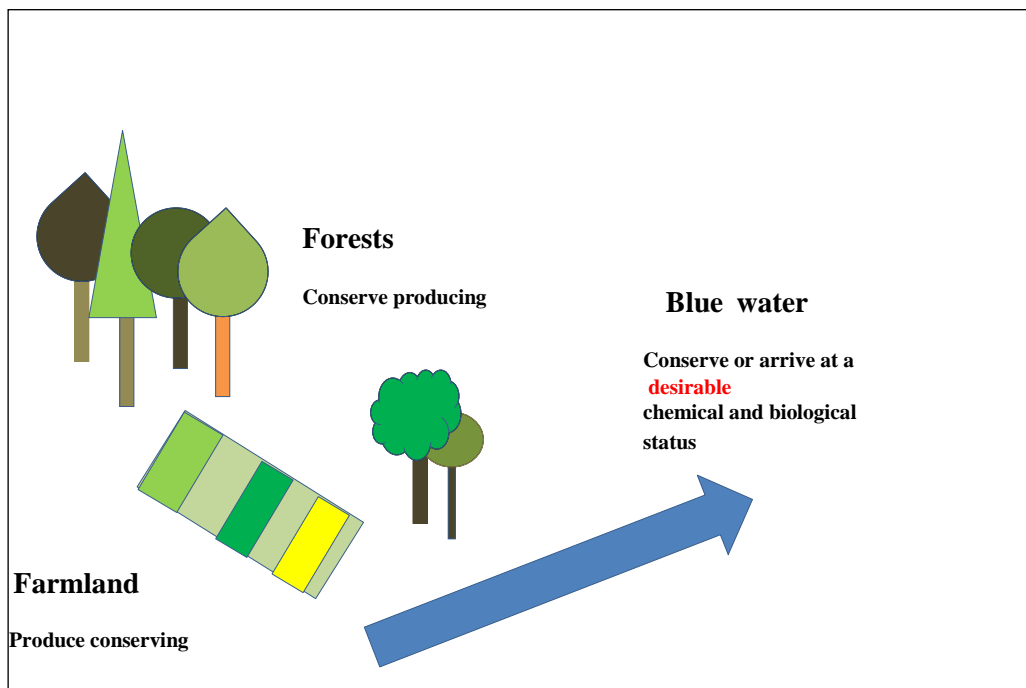
123. It is proposed to promote productive conservation in a context of widespread rural poverty, taking into account the fact that it is very difficult to carry out any conservation activity that is not remunerated for a positive impact on people's incomes. Therefore, the 'conserve while producing' approach (Figure 3) is taken in places where the environment has not been excessively disturbed, which can mean, for example, promotion of rational exploitation of resources such as non-timber forest products, while the 'produce while conserving' approach is taken in zones that are already devoted to agriculture, where the idea is to preserve the productive potential of the land by carefully managing irrigation water, plant cover, organic matter in the soil, etc.

Table 15
Linkage between the GEF project and the Ibarra-San Lorenzo project (IFAD)

Components	Subcomponents		
1. Capacity, citizen’s rights, and institutional strengthening	Institution building	Citizenship and access to social benefits	Participative mapping
2. Management of natural and environmental resources	Natural resource management subproject	Training in the management of natural and environmental resources	GEF project: Sustainable management of biodiversity and water resources
3. Development of business ventures and value chains		Support for business development	Financing for business activities
4. Recovery of ancestral knowledge and reaffirmation of cultural identities	Education for culture	Rehabilitation of the tangible heritage	Creative industries and products with identity
5. Management and administration	Covers the entire project		

124. In short, the proposed project is intended to attenuate some of the above-mentioned negative impacts and to strengthen the presence of the State in areas that are particularly hard-hit by human pressure, while building the capacity of the area’s inhabitants to conserve the environment and contribute to their own economic development and well-being.

Figure 3. Productive conservation approach of IFAD/GEF/MAE/STPE



A.2. Consistency with GEF policies and strategies

125. It should be underlined that this proposal is consistent with the priorities and principles of the GEF on two focal areas: **Biodiversity** and **Land Degradation**. In particular it supports the objectives of the **Sustainable Forest Management (SFM)** Strategy launched in 2007. As is recommended in the GEF's SFM programme, the project covers more than one sphere of activity, uses holistic approaches (with emphasis on the integral nature of ecosystems and their services and functions), and is based on existing strategies and cooperation to support sustainable forest management.

126. The goal of the GEF's **Biodiversity Focal Area** is the conservation of biodiversity through the sustainable use and maintenance of the goods and services that ecosystems provide for society, and the fair and equitable sharing of the benefits arising from the use of genetic resources. To achieve this goal, the strategy encompasses four complementary and mutually-reinforcing objectives:

- i. Improve the sustainability of protected area systems;
- ii. Mainstream biodiversity conservation and sustainable use into production landscapes/seascapes and sectors;
- iii. Build capacity to implement the Cartagena Protocol on Biosafety (CPB) and for the prevention, control, and management of invasive species; and
- iv. Build capacity to implement the Bonn Guidelines on Access to Genetic Resources and Benefit-sharing.

127. The GEF, therefore, supports building institutional capacity and the development of appropriate policies to ensure the sustainable conservation of biodiversity. The strategy is consistent with the ecosystem approach, which is the main frame of action promoted by the CBD.

128. The present project follows these guidelines as they pertain to preservation of biodiversity in countries that are exceptionally rich in ecosystems but very threatened, such as north-western Ecuador. The approach seeks to associate conservation with controlled production so as not to reduce productive capital or the supply of environmental services.

129. It also stresses greater equity in the distribution of environmental services and in the transfer payments that society decides to make to spur the conservation of its natural heritage and compensate for the loss of immediate benefits by users of the ecosystems to be preserved.

130. With regard to biodiversity, more specifically the project will support the second **Strategic Objective** of the Focal Area (BD SO2) "Mainstreaming biodiversity in production landscapes" through **Strategic Programme 5** (BD SP5) "Fostering markets for biodiversity goods and services," the promotion of actions that demonstrate the importance of gaining access to these goods and services, and the application of alternative instruments (payment for the use and safeguarding of environmental services) to protect biodiversity and foster its sustainable use.

131. The project will also support the **Strategic Programme 4** (BD SP4), "Strengthening the policy and regulatory framework for mainstreaming biodiversity" by developing local institutional capacity, where integration can be most effective.

132. In 2003, the GEF was designated as one of the financing mechanisms of the United Nations Convention to Combat Desertification (UNCCD) and tasked with the challenge of fighting degradation of land as a result of improper use. With regard to combating land degradation, the GEF focuses its action on three areas:

- **Agriculture.** Sustainable agricultural practices—such as crop diversification, crop rotation, water harvesting, suitable management of organic matter in the soil—can preserve the productivity of both rain-fed and irrigated agriculture.
- **Livestock farming.** The GEF promotes the sustainable management of rangelands through various methods to improve rational management of plant cover, soil and water conservation, to bolster the objective of preserving the potential for the productive use of biodiversity.
- **Forests.** GEF financing can include demonstration or pilot activities intended to conserve native forests or suitably manage secondary forests. To that end, it provides for innovative forms of financing to demonstrate the socioeconomic feasibility of the conservation methods being promoted.

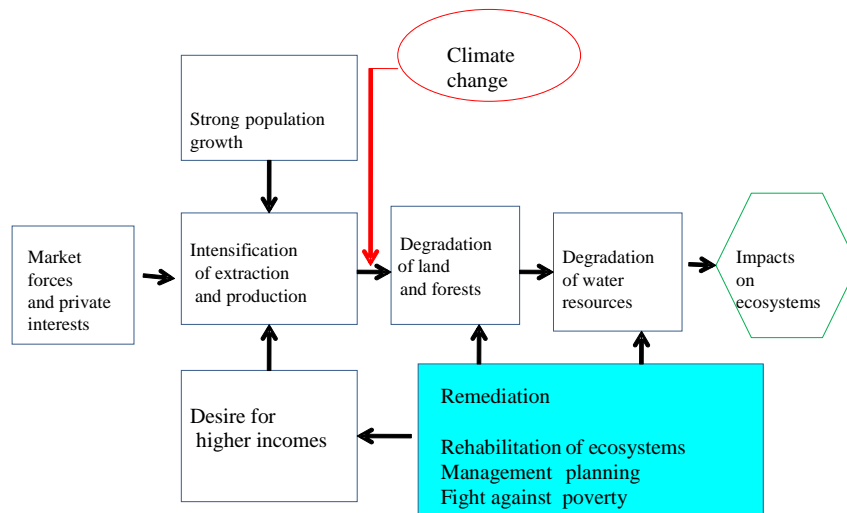
133. Fully consistent with this approach, the present Project will propose cost-effective, comprehensive actions in agriculture, rangeland and forest management—both primary, disturbed, and degraded—and the construction and strengthening of an institutional environment that favours sustainable land management.

134. As for the Focal Area of **Land Degradation**, the proposal supports **Strategic Objective 2** (LD SO2), “To upscale sustainable land management investments that generate mutual benefits for the global environment and local livelihoods” and, more specifically, the Strategic Programme 2 (LD SP2), “Supporting sustainable forest management in production landscapes.”¹⁴

135. The project will act in semi-arid zones which have lost soil fertility and have water shortages, and in mountain ecosystems and landscapes where its actions will focus on the protection and management of water resources and land-use planning to minimize the degradation of forested areas by controlling and proposing alternatives to degrading practices such as the expansion of the agricultural frontier, use of wood for energy, or illegal logging.

136. The following figure illustrates the project’s approach to the main problems identified:

Figure 4. Summary of the project approach



¹⁴ The International Tropical Timber Organisation (ITTO) defines sustainable forest management as follows: “the process of managing forest to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and services without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment.”

A.3. Consistency with national policies and strategies

137. The proposed project is closely aligned with the National Well-being Plan (PNDBV) and with the activities of the STPE, which will be the project's executing agency (Table 16).

138. The local environmental management component is particularly significant since it will contribute to national objectives 1, 3, 6 and 11, particularly with regard to the strategic activities for development along the border, such as reactivation of the economy and jobs, and improvement of the basic and social infrastructure.

139. The innovative initiatives for the conservation, restoration, and sustainable management of natural resources component is aligned with national objective 2 and with the STPE's institutional strengthening activities which focus on the recovery of ancestral knowledge and technical innovation to improve the management and administration of natural resources.

140. The incentives for productive conservation component will contribute to national objective 4 and the STPE's line of intervention which is sustainable natural resource management, which is a strategic area for Ecuador.

Table 16
Institutional alignment of the STPE with the National Well-being Plan 2009-2013 and the components of the GEF project

Objectives of the National Well-being Plan	Policies of the National Well-being Plan	Lines of intervention of Plan Ecuador	Components of the GEF project
Objective 1. To promote equality, cohesion, and social and territorial integration in diversity.	1.8. To promote rural well-being.	Reactivation of the economy and employment	Local environmental management capacity
Objective 2. To increase the capacity and potential of the citizenry.	2.6. To promote research and scientific knowledge, the recovery of ancestral knowledge, and technological innovation.	Institution building	Innovative initiatives for the conservation, restoration, and sustainable management of natural resources
Objective 3. To improve the quality of life of the population.	3.6. To guarantee decent, safe, and healthy housing and habitat, with equity, sustainability, and efficiency.	Improvement of basic social infrastructure	Local environmental management capacity
Objective 4. To guarantee the right to nature and promote a healthy environment.	4.1. To conserve and sustainably manage the natural heritage and its land and marine biodiversity, viewed as a strategic sector.	Sustainable natural resource management	Promotion of productive conservation
Objective 5. To guarantee sovereignty and peace and promote strategic integration into the world and Latin America.	5.1. To exercise sovereignty and promote peaceful coexistence of individuals in a culture of peace.	Protection of national sovereignty	
Objective 6. To guarantee stable, fair, and decent jobs of different kinds.	6.3. To promote banding together in associations as the basis for improving labour conditions and for creating new jobs. 6.7. To promote job training.	Reactivation of the economy and employment	Incentives for conservation
Objective 8. To affirm and strengthen national identity, diverse identities, multinationality and multiculturalism.	8.4. To promote and support processes of cultural creation in all their forms, languages, and expressions, for individuals, groups, and communities.	Human rights, humanitarian assistance and asylum	
Objective 11. To establish a sustainable socioeconomic system built on solidarity.	Policy 11.1. To promote a home-grown economy for well-being that is sustainable and territorially balanced, that guarantees rights and productive transformation, diversification, and specialization through the promotion of different forms of production.	Reactivation of the economy and employment	Incentives for productive conservation

141. For the purposes of the present analysis, the main strategies of the PNPBV are sustainability, conservation, knowledge of the natural heritage, and promotion of community tourism, which determine the five themes or lines of action that guide its implementation:

- (a) To link and develop ties between the natural heritage and conservation and effective management of natural spaces.
- (b) To prevent and attenuate pollution.
- (c) To incorporate a vision of economic use that includes co-responsibility for the effects of global warming.
- (d) To consider water as a right and a national heritage to which the entire population should have access.
- (e) To confer value on nature through tourism, particularly community tourism, generating educational and recreational opportunities in addition to jobs and the redistribution of wealth.

Through its components, the project is appropriately aligned and will contribute to implementation of the strategy (Table 17).

Table 17
Linkage between the strategy for sustainability, conservation, knowledge of the natural heritage and promotion of community tourism and the project’s components

Lines of action of the PNPBV strategy	Components		
	Local environmental management capacity	Innovative incentives for conservation, restoration, and sustainable management of natural resources	Incentives for productive conservation
Natural heritage, conservation, biodiversity	High	Medium	High
Pollution prevention: continental, maritime waters, land, rural and urban zones	Medium	Medium	Medium
Economic use and co-responsibility for the environment	Medium	High	High
Conservation of the water cycle and equitable access to it.	High	High	High
Valuation of nature and creation of new use options (tourism)	High	High	High

142. The policy and strategic plan for development of the national system of protected areas (SNAP), 2007-2016, has the following objectives among others: (i) to consolidate the SNAP, ensuring the conservation and representativeness of land, marine, and coastal ecosystems; (ii) to bolster the capacity of the National Environmental Authority and other agencies responsible for the administration and management of subsystems; (iii) to promote comprehensive management of the SNAP through participation by stakeholders in the management of protected areas; (iv) to improve the governance of the programme for Ecuador’s Protected Areas (PANE), through the management of conflicts over land tenure based on the Constitution and national and international instruments.

143. The strategy for sustainable forest development of Ecuador (2002), revised in 2005, stresses the following policy lines: (a) to halt the loss of native forests by promoting development instruments for their sustainable management that place a value on their goods and services; (b) to conserve and

manage forests and resources in protected natural areas, wetlands, mangrove swamps, and páramos, through alternatives for use; (c) to restore deforested lands suitable for forests, incorporating them into the processes of economic and social development through the promotion of reforestation; and (d) to ensure the participation of rural populations and indigenous and black groups in decision-making and the processes of planning, execution, and monitoring of forest and conservation programs.

144. The National Forest and Reforestation Plan, approved under a Ministerial Directive of 15 September 2006, promotes forestation for watershed protection and the development of farm-forestry among its strategic lines of action.

145. The National Biodiversity Policy and Strategy (ENB), approved under Decree No 2232, of January 2007, contains basic policies and strategies for the conservation and sustainable use of Ecuador's biodiversity. It directs the action of different institutional, productive, and social stakeholders and establishes priorities for intervention by the government and civil society. The ENB is intended to maintain the integrity and functionality of the national biodiversity heritage while assuring that its use will contribute to the country's sustainable development and guarantee the quality of life of present and future generations.

146. The **Socio Bosque Programme** [Forest Partners Programme] (see Annex 11) is an initiative of the MAE that provides an incentive for farmers and indigenous communities who voluntarily commit for a period of 20 years to the conservation and protection of forests, páramos, and other native ecosystems. The program consists of direct annual monetary payments by the Government per hectare of protected forest to individual landowners or indigenous communities. Socio Bosque assures direct and equitable benefits for the local people who contribute to the reduction of deforestation rates, and seeks reconciliation between conservation and human well being.

147. The programme proposes to cover up to 4 million hectares of native forest; to generate significant reductions of GHG emissions caused by deforestation, and to improve the living conditions of one million of the poorest people of the country. The first steps were taken in 2008 and the Program covers currently 13 % (0.51 m ha) of this target. The Government has established a fund to maintain the programme and is actively seeking the backing of the international community and cooperation agencies.

148. The per hectare incentive is calculated regressively: the more forest it is owned, the less money it is paid per hectare. The payments that communities receive from Socio Bosque should be collectively invested in infrastructures to fulfill their basic needs and/or facilitate the conservation of forest resources.

A.4. Project value added

149. **Reference scenario without the GEF project.** National policies are paying increased attention to the environmental degradation in the country, but lack of funds and human resources make them ineffectual. Within the project area there are some related initiatives (mentioned in section E), but they differ in scope and geographical coverage, meaning that their impacts will be only marginal on the area within the Ibarra-San Lorenzo Corridor. In addition, poor coordination among stakeholders and organizations is limiting the impact of regulations and initiatives in the field, and jeopardizing the already weak resource conservation and protection. This is evidenced by a continuing loss of vegetation cover, the ongoing extraction of forest resources largely fuelled by the scarce economic opportunities for local rural communities.

150. In the absence of the IFAD-GEF project, degradation would continue in dry forests as well as cloud and humid tropical forests, with a resulting loss of biodiversity, ecological functions and critical environmental services of global significance. Because of insufficient capacity at local level, commendable GoE initiatives such as SOCIO BOSQUE are at great risk of not being able to reach

their target with poor communities which lack the required administrative and managerial know-how to comply with the PES requirements and take good advantage of its benefits.

151. At the local level, communities will continue experiencing difficulties to access to the Socio Bosque Program since it is more difficult for them to provide proof of land ownership (compared to individual owners). Although communal land is recognized, it requires a long process to fulfill all the requirements. Additionally, some communities will continue experiencing difficulties evaluating their investment options, and also finding supplementary funds in those cases when the funds received from Socio Bosque are not enough to cover the chosen infrastructure investment.

152. **Alternative scenario with the GEF Project.** The GEF proposal, blended with the overall IFAD project, will specifically support the objectives of Plan Ecuador, reinforcing its coordination role, that will in turn results in better integration among the several initiatives planned or ongoing in the region. The IFAD-GEF project will also help catalyze support from other donors and institutions to the region, and will strengthen the monitoring capacities of the MAE. The proposal will motivate the population to carry on their socio-economic activities in an environmentally friendly manner.

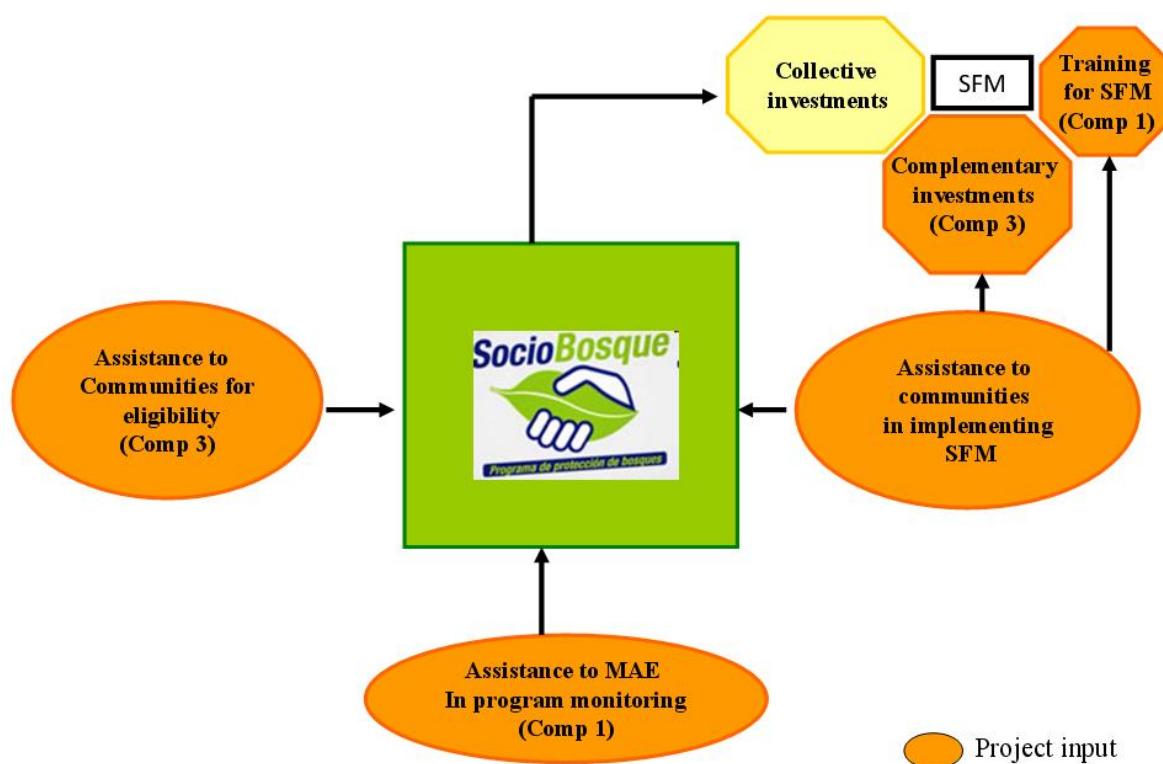
153. More specifically, the IFAD-GEF intervention in the northern region will help to: (i) facilitate opportunities to develop promising production alternatives and others associated with biodiversity use and management; (ii) considerably increase, in the region, the outreach and impact of the newly-established compensation mechanism (SOCIO BOSQUE) for the sustainable use and protection of forest-based environmental services, thereby increasing the global environmental benefits derived from it ; (iii) empower the regional dependencies of MAE, stakeholder groups and local organizations to manage biodiversity resources, water and landscapes, upgrading their skills to provide associated services; (iv) improve the local knowledge base on sound environmental management and share best practices in natural resources use ; and (v) strengthen intersectoral and interinstitutional relations and coordination.

154. The project will locally support and reinforce the implementation of **Socio Bosque** aiming at biodiversity preservation and the reduction of forest degradation nation-wide. **Socio Bosque** is meant to primarily target areas where the population is poor and the pressure on forests is high and its objectives closely match those of the GEF project , so that a high level of synergy is expected from an incremental support from GEF, as well as good future upscaling prospects.

155. Under the alternative scenario, communities will get access to the **Socio Bosque** scheme as they will receive the required support to fulfill the legal and administrative requirements. They will also be able to implement complementary SFM measures, and to adopt of more and better biodiversity-friendly practices thanks to the additional supplementary funds provided by the GEF.

156. At the same time, MAE agents will be better prepared to monitor the implementation of the Socio Bosque Program and the compliance of contractual obligations. Socio Bosque's funds will be considerably leveraged and will be primarily allocated to the poor communities in the region. The following figure illustrates this link:

Figure 5: Socio Bosque and the GEF project collaborate for community-led SFM



B. ELIGIBILITY

157. The consistency of the project with the GEF’s strategic guidelines has been verified in section A2, and therefore it meets the eligibility conditions. It should also be recalled that the country has ratified a series of international conventions that confirm its membership in the international community and its eligibility for the donation that co-finances the proposed project.

B.1. Country commitment

158. **International conventions.** Ecuador is a signatory of various multilateral treaties and agreements that are listed in Table 18. In particular, it signed and ratified the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, which are consistent with national sustainable development priorities.

159. Ecuador has also established a National Committee on Climate Change (CNCC), with the National Meteorology and Hydrology Bureau acting as its technical secretariat. The committee’s responsibilities include building capacity to address climate change, designing policies and strategies to back the country’s position in international forums, and preparing institutional proposals for the application of the Clean Development Mechanism (CDM) envisaged in the Kyoto Protocol.

160. The Ministry of the Environment is the National Authority for the CDM (NA-CDM). It chairs the CNCC and in its capacity as the GEF Focal Point it established the climate change process in the Under-secretariat of Environmental Quality. This technical unit has the basic function of coordinating inter-agency and cross-sector activities in this field.

161. Ecuador ratified the United Nations Convention on Biodiversity (UNCBD) in 1993. Two significant advances have been made on the regional level. The first is approval by Ecuador and the member countries of the Andean Community of Nations of Decision 523 establishing the Regional

Biodiversity Strategy for the Countries of the Andean Tropics; and the second is approval of the Expanded Programme of Work on Forest Biological Diversity (COP 6 2002, CBD). This marked the beginning of the recognition of the value of the traditional knowledge of indigenous communities as it relates to forests and the promotion of biodiversity through sustainable forest management.

162. The new approaches allow for more closely coordinated work between the conventions, with the main purpose of maximizing national and international efforts to avoid the reduction of forests and the associated biological and cultural diversity.

Table 18
Main international instruments ratified by Ecuador

No.	Name	Date of ratification
1	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	11/02/1975
2	Convention concerning the Protection of the World Cultural and Natural Heritage	16/06/1975
3	Convention on the Conservation and Management of Vicuñas	14/04/1982
4	Convention on the Conservation of Antarctic Marine Living Resources	16/06/1987
5	Vienna Convention for the Protection of the Ozone Layer	10/4/1990
6	Montreal Protocol on Substances that Deplete the Ozone Layer	30/4/1990
7	RAMSAR Convention on Wetlands	07/01/1991
8	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes	23/02/1993
9	Convention on Biological Diversity	23/02/1993
10	Framework Convention on Climate Change	4/10/1994
11	United Nations Convention to Combat Desertification	6/09/1995
12	International Tropical Timber Agreement	1994 (12/1995)
13	Kyoto Protocol	20/12/1999
14	Inter-American Convention for the Protection and Conservation of Sea Turtles	29/08/2000
15	Cartagena Protocol on Biosecurity	30/01/2003
16	Convention on the Conservation of Migratory Species of Wild Animals	2/10/2003
17	Agreement on the Conservation of Albatrosses and Petreles	18/02/2004
18	Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	4/05/2004
19	International Treaty on Phytogenetic Resources for Food and Agriculture	7/05/2004
20	Stockholm Convention on Persistent Organic Pollutants	7/06/2004

Source: Ministry of External Relations of Ecuador and Official Government Records.

B.2. Project ownership

163. The project has undergone a series of analyses and has been discussed on various occasions with government authorities, organizations, and other cooperation agencies. All these events have favoured working with other strategic partners and therefore the time is ripe for institutionalizing the project in the STPE and, above all, with the final users, which are organizations, associations, communities, microentrepreneurs, solidarity groups and, in general, the population that depends on rural and rural/urban activities in the project area.

164. One indication of this sense of ownership is the interest demonstrated by representatives of local stakeholders in the public consultations held in January 2010, as described in Table 19.

Table 19
Involvement and ownership. Results of public consultations with stakeholders in the project area

Causes	Environmental pressure	Status	Potential impact	Possible responses identified
Western zone (Esmeraldas, part of Carchi). San Lorenzo–Alto Tambo				
Large palm plantations	Pollution of rivers, estuaries and coastal systems by pesticides, heavy metals (mercury), oil, and byproducts of palm oil extraction	Failure to obey environmental laws, standards, and regulations by palm growers, miners, and logging companies	* Negative impact on the productivity of ecosystems in inland and coastal waters (fish and crustaceans)	- Evaluation of the intensity and extent of pollution -Monitoring and evaluation of invertebrate and fish populations
Development of small-scale mining, particularly for gold		Absence of environmental monitoring of soil, water, and plant cover	* Reduction of biodiversity in coastal ecosystems * Possible impact on public health	- Assistance and training for communities to raise awareness of rights and duties to respect the law, negotiation, and conflict resolution - Institution building for government players (MAE, local governments, sector committees)
Absence of systems to treat domestic waste in the communities	Pollution of land, rivers, and estuary systems	Haphazard build-up of waste, particularly plastics		- Pilot project for the collection and treatment of domestic plastic waste (manufacture of paving stones, etc.)
Heavy demand for charcoal by urban companies	Forest invasion by charcoal makers	Uncontrolled charcoal burning	Contribution to deforestation	- Experiment with alternatives to charcoal (briquettes/wood pellets)
Indiscriminate felling of trees by logging companies. Absence of effective plans for sustainable forest management	Lack of protection and degradation of large areas of fragile land	- Soil erosion - Drastic reduction in high value tree species that are not allowed to regenerate	- Alteration or disappearance of primary forests and much of the biodiversity they shelter. In the long run, low productivity of secondary forests	- Operationalization of incentives for productive protection - Better monitoring and control of management plans
Livestock dominates over crop farming	Over-grazing	- Insufficient local fruit and vegetable production	- Food insecurity	- Promotion of family gardens
Conflicts over land between the Awá and Afro-Ecuadorian groups	- Disputes over access to relatively virgin land		Threats to the integrity of Awá territory and the survival of their management system that is respectful of biodiversity	- Assistance with conflict resolution
Central zone (Imbabura and part of Carchi). Pimampiro-Lita				
Unsuitable farming practices on steep slopes	Exposure of the land to heavy rainfall	- Soil erosion and sedimentation in rivers - Water pollution through abuse of pesticides and chemicals - Sub-optimal use of irrigation systems	Growing shortage of good-quality water for irrigation	- Promotion of sustainable land use practices - Investments in pilot micro-watersheds, placing them under sustainable management for demonstration purposes and replication
Absence of effective plans for sustainable forest management	Lack of protection and degradation of large areas of fragile land			
Population growth and illegal land sales		Widespread problem of low-productivity micro-holdings	Migration, family breakdown, and worsening poverty	- Promotion of high-efficiency irrigation practices and use of organic fertilizers - Crop diversification and increased value added

Source: Systemization of the public consultations. January 2010

C. PROGRAMME OBJECTIVES AND DESCRIPTION

C.1. Project goal

165. The Project overall goal is to promote biodiversity conservation as well as sustainable land and forest management in the Ibarra-San Lorenzo corridor so as to preserve and improve the provision of environmental services in the area, reduce poverty and foster social inclusion to the benefit of indigenous people and local communities.

C.2. Project objective

166. The project objective is to locally demonstrate the relevance of an array of SLM and SFM approaches and practices to achieve the preservation of biodiversity and the maintain the productivity of existing ecosystems, and at the same time incentivise the up-scaling of such practises.

C.3. Components and activities

167. The project has been structured into four components based on the expected outcomes (see Annex 2, Logical Framework):

- (a) Capacity development for the locally-driven sustainable management of natural resources
- (b) Catalytic investments for the conservation, restoration and sustainable management of natural resources
- (c) Incentives for community-led sustainable forest management
- (d) Management, monitoring and evaluation

168. The logical framework of the project in presented in Annex 2.

COMPONENT 1. Local environmental management capacity (GEF contribution: US\$494,000)

169. The objective of this component is to integrate biodiversity conservation into agriculture, forestry, and use of coastal resources. The aim is to integrate the sustainable use of natural resources into local plans and activities, to which end the capacity of local public institutions and community groups will be built up in the areas of evaluation and planning for natural resource conservation and the preparation of communal plans based on sustainability. The project will also support the negotiating capacity of communities while strengthening the environmental authority (Ministry of the Environment—MAE) and other community entities linked to conservation.

a. Training for community organizations, local governments, and sector committees

170. The project will focus on strengthening the organizations and entities that are most directly involved in implementing the environmental investments to be financed under Component 2. The principle of subsidiarity will be applied to the extent possible, which implies tacit economic recognition of current and future contributions to conservation by local players. Because of the local nature of the intervention, the participants will be parish boards, communities, and other interest groups. However, training may also be offered to ad hoc groups such as sector committees created under the auspices of the MAE and which include local governments and institutions or civil society organizations.

b. Training for the deconcentrated agencies of the MAE

171. To strengthen and provide sustainability for earlier interventions that have had an impact, the project plans to contribute to the training of the environmental authority in areas related to monitoring and control of compliance with regulations, and to recognize and promote good practices in compliance with forest and páramo management plans, the preparation of forest inventories, etc.

c. Strengthening of monitoring in SNAP areas

172. The project zone contains two areas that form part of the national system of protected areas (SNAP)¹⁵. Considering that the SNAP's two ecological reserves are located in the project area, the regional teams of the MAE and groups of volunteer community promoters will be trained in priority aspects such as:

- In REMACAM: (i) training and minimum equipment for community promoters (life jackets, means of communication, etc.); (ii) assistance in monitoring regulations governing fishing and the collection of crustaceans and molluscs; (iii) assistance in preparing and implementing plans for co-management of the mangrove swamps; and (iv) research, monitoring, and evaluation of threats to the biodiversity of the coastal ecosystems in REMACAM with respect to the quality of water in the estuaries and sources of pollution. The scientific research will be conducted by a university or other specialized centre.
- In RECC: within its buffer zone, support will be provided for the MAE in preparing and monitoring forest and land management plans, which will strengthen the capacity of the sector committees to monitor and enforce the SNAP regulations.

d. Environmental education

173. The project will strengthen and promote environmental education in schools close to the areas of intervention, for example in the two ecological reserves, in Awá territory, and in the parishes where the most representative mountainsides and watersheds are located.

e. Monitoring and evaluation of the project

COMPONENT 2: Innovative initiatives for the conservation, restoration, and sustainable management of natural resources (GEF contribution: US\$1,130,000)

174. The objective of this component is to use natural resources applying the 'conserve producing' approach in places where the environment has not been excessively disturbed. It will promote rational use of non-timber forest resources, which means to 'produce conserving.'

175. In zones already devoted to farming, the productive potential of the land can be preserved through careful management of irrigation, plant cover, organic matter in the soil, etc. In short, the project will reduce some of the negative impact of environmental deterioration.

¹⁵ According to the Forest Act in respect of the Conservation of Natural Areas and Wildlife of 1981, the national system of protected areas covers the following categories: (a) **national parks**; (b) **ecological reserves**: This is an extensive area with the following characteristics and purposes: (i) one or more ecosystems, species of wild plants or animals of great national significance, particularly those threatened with extinction; (ii) covers a minimum territory of 10,000 ha set aside for the survival of wildlife, singular geological formations, sites of natural and cultural interest in natural or partly altered areas; (iii) basically includes territories that preserve and safeguard the ecology of the country's main regions, regulate land use and the development of rural zones; (iv) under the direct and exclusive management of the respective national government agency, their natural traits and values are fully protected and their territory may not be exploited or occupied in any way; and (v) visitors may enter under controlled conditions, but only for educational, research, or recreational purposes; (c) **wildlife refuges**; (d) **biological reserves**; and (e) **national recreational areas**.

176. The following activities are proposed.

a. Sustainable management of the land in micro-watersheds and drainage basins in the dry zone

177. Agreement will be sought with local players to work in the dry central valley area (Chota river valley and tributaries), concretely on two drainage basins/micro-watersheds (covering approximately 2500 has), through systematic practices to improve soil and water management, trickle irrigation, fruit growing (avocado, cactus fruit, and other), use of living windbreaks, organic fertilizer, appropriate crop rotation, and adequate grazing practices, etc.

b. Preparation of and assistance with the implementation of forest management plans

178. The project proposes to assist the communities in the preparation and implementation of plans to manage primary forests, mainly in Awá territory, supporting rational and sustainable logging and the careful collection of non-timber forest products to maintain the economy, ensuring respectful management of resources and equitable capture of value added by the communities. Support will also be provided for sustainable management of other ecosystems of high ecological importance, for example the páramos, which will also be promoted and assisted.

c. Co-financing of investments in the REMACAM management plan

179. The project will support implementation of the management plan for the Cayapas-Mataje Ecological Reserve. This includes, among others, the intensified replanting and recovery of the mangrove swamps using native species, particularly those in danger of extinction, as has been the practice to date.

COMPONENT 3: Incentives for the productive conservation of natural resources (GEF contribution: US\$872,000)

180. The objective of this component is conservation and sustainable use of natural resources to complement components 1 and 2, through the facilitation of incentives.

a. Assistance for operationalization of the Socio Bosque Programme

181. As mentioned above, the Socio Bosque Programme is an initiative of the GOE based on payment for environmental services (PES) on the national scale, which proposes to foster the conservation of up to 4 million hectares of forested land that is currently threatened, through transfer payments to private and community users of that land. PES programs intended to conserve forests are possible candidates for support from the World Programme for Reduced Emissions from Deforestation and Forest Degradation (REDD) and therefore the opportunity of cooperating with Socio Bosque is highly strategic for increasing its scope and activity in the project zone, given its pioneering nature. The assistance provided by the present project will focus on complementing and reinforcing this ongoing Program, more than establishing a new one. This collaboration will consist of:

b. Support for operationalization of Socio Bosque in communities in the intervention zone (including Awá territory)

182. The goal is to facilitate and support access to Socio Bosque by communities that own forested areas. Currently, the expected enrolment of communities as Socio Bosque partners is hindered by a number of administrative requirements and lack of information. As it was mentioned before, in order to access to the Program, land owners need to provide proof of land ownership. Although communal land is recognized in Ecuador, to proof the ownership in cases where the owner is not a single individual or company but a collective group (e.g.: an indigenous community) requires a long and difficult process. Additionally, the communities are required to collectively invest the payments they

receive from the Program into infrastructures to fulfill their basic needs and/or facilitate the conservation of forest resources.

c. Execution of investments to support sustainable management of forests by communities involved in the Socio Bosque Programme¹⁶

183. In other cases, the funds received are not enough to cover the total costs of the social investments. Therefore, the project proposes to: (i) assist in the adequate use of transfer payments made collectively by Socio Bosque in accordance with a signed contract (generally for social investments to benefit the communities),¹⁷ and (ii) finance additional investments for sustainable forest management by community members.

COMPONENT 4. Project management (GEF contribution US\$204,000)

184. Component 4 of the project will encompass activities for project management and its costs will total US\$204,000 (representing 7.5 % of the GEF contribution). An experienced professional will be recruited to coordinate the project with the general manager of the framework project, particularly the natural and environmental resource management component of the IFAD project.

C.4. Indicators

185. An indicator is a qualitative, quantitative, or descriptive attribute which, when periodically measured or monitored, indicates the direction of change. Indicators should be identified and established so that changes provide information that is necessary and meaningful for evaluating progress toward the achievement of: (i) a better state of biodiversity; and, (ii) sustainable land management, in particular sustainable forest management.

186. **Biodiversity** includes diversity within each species, diversity between species, and the diversity of ecosystems. **The sustainability of land and forest management** is apparent in the production of a continuous flow of desirable forest products and services, without a reduction in its productive potential (measured for example against primary productivity).

187. To be directly applicable to environmental management, the indicators selected should be capable of:

- (i) **Measuring changes in the status or products** of land, water, and forest resources.
- (ii) **Reflecting the impact of the main threats:** Reporting on the spatial and temporal evolution of the main factors that threaten biodiversity in the project zone. The main threats are pollution, physical alteration of habitats, and overexploitation of ecosystems products. The presence of critical species may be in itself an indicator of the state of the ecosystem.
- (iii) **Tapping information and past experience.** Experience in campaigns to evaluate resources, monitoring hunting bans, etc., should be tapped in defining indicators. The experience of NGOs

¹⁶ While the current transfer payment to individual owners is \$30/ha/year for up to 50 ha (actual average in the order of \$19/ha), it falls to just \$5/ha for community members since thousands of hectares are communally owned (an average of 9,000 ha among the 43 communities currently involved in the programme). If the land were divided, each family would have a lot that is smaller than 50 ha.

¹⁷ According to the Socio Bosque manual, investments can be made in economic-productive undertakings, environmental infrastructure, organizational strengthening, social (education, health care, etc.) and cultural projects, to mention only the most important. They can be used, for example, to promote an ecotourism project in community XXX, improve the productivity of farmland in community XXX, build a women's comprehensive assistance centre, upgrade access roads to town XXX, signage and maintenance of ditches in conservation area XXX, establish a community credit union, etc.

and specialized institutions should be kept in mind as a substantial part of trends and measurements.

- (iv) **Be inexpensive** to measure and provide useful information with a minimum of time, effort, and cost.

188. The identification of relevant indicators should involve the communities and institutions that will be affected by project interventions, to the extent possible. This is an undertaking that needs the cooperation of a variety of players so that the following information can be identified for each indicator:

1. Geographic position
2. Date and frequency (or period) of collection
3. Person responsible for data collection and processing
4. Method of compiling information (type of sampling, instrument)
5. Analytical processing (method of analysis and data processing)
6. Data circulation channels

189. The proposed base-line environmental survey, to be undertaken within the first year of the project, will contribute to complete and fine-tune the indicators mentioned in the framework—which are indicators of process or results—and to better determine the clear set of verifiable indicators that will be used to measure the expected changes all along the project. Those indicators will be improved through interaction with the parties involved in monitoring the project during its implementation.

Table 20
Examples of indicators on the condition of local ecosystems

Criterion	Indicator	Data to be collected	Measurement method	Use of information
Structure and composition of plant cover	Changes in the % of cover by type of plant	% cover found, for example, through the interpretation of remote sensing imagery	With long intervals (1 year or more), if possible in the same season	Changes of this nature usually indicate changes in the distribution of habitats and in productive potential.
Distribution of habitats	Changes in the boundaries of habitats	Mapping of habitats and interconnectivity	Sampling by transect	Indicates the expansion or reduction of critical habitats.
Presence of indicator species	Changes in the presence, location, or number of individuals	Numbers by sampling	Sampling, information from users and communities	The significance of the presence of these species should be known. Also the presence of invasive species is an indicator of disturbances.
Frequency of critical events	Change the number of events such as landslides, burns, etc.	Inventories of events, their magnitude, and frequency	Patrols, remote sensors, reports	A relationship exists between the occurrence of events of this type and the health of ecosystems.

190. Basically, metric expressions of diversity take three aspects into account:

- *Richness*: The number of elements. Depending on the level, this can be the number of alleles or heterocigosis (generic level), the number of species (specific level) or the number of habitats or different environmental units (ecosystem level).
- *Relative abundance*: The relative presence of each of the elements in relation to the rest.
- *Differentiation*: The degree of genetic, taxonomic, or functional differentiation of the elements.

191. Each of these indexes of diversity is one-dimensional and its reading is limited. Comparisons and valuations of biological diversity are necessarily incomplete in these terms. However, land use can be clarified in relative and qualitative terms from the standpoint of biodiversity (see Table 21).

192. The best indirect indicator is deforestation and/or degradation of forests. Although information is available on threatened and endangered species, the exact magnitude of the loss of ecosystems, species, and genes in the Chocó ecoregion is unclear. Indicators must be identified to learn about the state of biodiversity in the ecoregion and establish baselines to determine opportunities for intervention targeted to the conservation of biodiversity with ecological, social, and technical criteria.

193. Another delicate subject is indicators of capacity. The improvement in individual and institutional capacity under the project should result in a marked reduction in pressure. The capacity of institutions and the effectiveness of management clearly influence the conservation of biodiversity; however, it should be noted that managerial capacity does not always translate into effective leadership. Therefore two different sets of indicators are required: one to measure capacity and one to measure effectiveness.

Table 21
Relative indexes of biodiversity

Land use	Relative index
Annual crops	0.0
Perennial crops	0.2
Natural pasture	0.0 without trees, 0.3 with trees
Improved pasture	0.0 without trees, 0.3 <30 trees, 0.6 >30 trees
Orchards	0.3 monoculture, 0.4 variety
Shade coffee	0.6
Forage bank	0.4 monoculture, 0.6 variety
Commercial plantation	0.4
Bamboo (<i>guadua</i>)	0.5
Riparian forest	0.8
Secondary forest (>10m ²)	0.9
Primary forest	1.0

Source: World Bank

D. EXPECTED ENVIRONMENTAL BENEFITS

194. The project will generate benefits on the global, national and local levels given that it focuses its interventions on the maintenance and/or restoration of critical ecosystems and of the environmental services they provide on a significant scale.

195. This operation will have positive environmental impacts associated with measurable results in terms of: (i) protection of coastal and forest ecosystems of global importance; (ii) reduction of the risk of environmental loss and damage caused by pollution of the coast, land, and groundwater; (iii) greater regional environmental management capacity, including control and prevention of marine pollution and prevention of the degradation of forests and land, and (iv) consistent reports on environmental trends in the zone. Positive social impacts are also expected as a result of participation by a large number of interest groups that have traditionally been excluded from the exploitation of natural resources which has been led by agro-industrial interests.

196. The project is not expected to have negative environmental or social impacts on account of the nature, scale, and location of the activities to be financed with the GEF donation and the larger financing by IFAD and the national and decentralized governments for incremental activities.

D.1. Expected benefits at global level

197. The proposed project is expected to contribute to the following global environmental benefits in the areas of biodiversity, land degradation, and sustainable forest management.

- 1.Reduced loss of biodiversity in the Biogeographical Chocó hotspot through the preservation of high-potential coastal and inland ecosystems pertaining to National Protected Areas.
- 2.Improved financial sustainability and management of two National Protected Areas.
- 3.Effective markets for biodiversity goods and services fostered.
- 4.Land degradation halted in representative vulnerable areas.
- 5.Strengthened enabling environment that places sustainable land management in the mainstream of development policy and practices at regional and local levels.

198. It is worth highlighting that the conservation of forests in the Chocó ecoregion (an exceptional reservoir of plants and animals that produce substances with medicinal potential) in the province of Esmeraldas should be considered a global priority on account of their high biodiversity and the threats they face.

199. Additionally, the expected impact of the project by helping to operationalize Socio Bosque should be underlined, since it could influence the activities of that national programme and even its international recognition on account of its pioneering nature and possible linkage with the REDD international initiative¹⁸.

200. If successful, Socio Bosque will not only provide benefits from the conservation of Ecuadorian forests on a large scale, but can also be replicated and adopted in other climes with a large multiplier effect in terms of global benefits. Deforestation produces approximately 18% of greenhouse gas emissions around the world, more than all automobiles, trucks, trains, boats, and aircraft taken together. If we fail to reduce them, we will fail to stabilize our climate.

201. A detailed outline of the expected Global Environmental Benefits is presented in **Annex 5**.

¹⁸ The REDD programme (Programme for Reduced Emissions from Deforestation and Forest Degradation) is an effort to create a financial value for the carbon stored in forests, with developed countries offering incentives to developing ones to reduce emissions caused by deforestation and invest money in sustainable alternatives.

D.2. Expected benefits at national level

202. All the above-mentioned benefits will be reflected nationally and scaled up as the country is endowed with better prospects for the preservation of its environmental heritage, the well-being of the population of the area, and therefore better security for the citizenry. As a cross-cutting action, support will be provided to boost the MAE's regional control and surveillance capacity in the areas mentioned, with a positive impact on regulatory capacity on the national level.

203. One example of expected benefits for the rest of the country resulting from the project's approach to sustainable management of land and forests is the data compiled by the monitoring and evaluation system that will underline the value of the benefits obtained and allow for better comparisons of the pertinence of different land uses from the standpoint of national well-being, as illustrated by the following example.

Box 2. Economic arguments for sustainable forest management

A study from Mount Cameroon comparing low-impact logging with more extreme uses of land found that private benefits favour the conversion of forests to small-scale agriculture. Conversion to oil palm and rubber plantations, however, yielded negative private benefits once the effect of market distortions was removed. Social benefits from non-timber forest products, sedimentation control, and flood prevention were highest under sustainable forestry, as were global benefits from carbon storage. This was verified for a range of options. Overall, the total economic value of sustainable forestry was 18% greater than of small-scale farming (US\$2,570 compared with US\$2,110 per hectare).¹⁹

D.3. Other expected benefits at local level

204. **Biodiversity benefits.** Research results suggest that a more diverse ecosystem can better withstand environmental pressure and is therefore more productive. An ecosystem with high biodiversity will have a better chance of adapting to environmental change. In other words, the more species an ecosystem has, the more likely that ecosystem is to be stable and resilient.

205. The following benefits are expected under the strategic line to preserve biodiversity:

- a. Reduction in human pressure in the biogeographic hotspot of Chocó and restoration of areas with critically important ecosystems such as the mangrove swamps (estuaries of the Santiago and Mataje rivers) and the humid and cloud forests in the foothills of the western cordillera.
- b. Consolidation of the conservation of biodiversity in the Awachachi biological corridor and in the Awá territory.
- c. Rational management of biodiversity in different fragile ecosystems, including the dry forest of Chota and the cloud and humid forests in the foothills: (i) in the dry forest through the recovery and use of multipurpose native species such as the mesquite and the guarango (*Caesalpinia spinosa*); (ii) in the secondary humid tropical forest through management of species such as guadua, balsa, laurel, the use of non-timber products such as tropical flowers, native honey bees, butterflies, and medicinal plants among other promising species; (iii) in mangrove swamps, by reforesting degraded areas, improving repopulation techniques for shell and crustacean collection and value added, and management of the coconut palm.

¹⁹ World Bank: Convenient solutions to an inconvenient truth; Ecosystems-based approach to climate change, 2008.

206. At the local level, the project will also contribute to the promotion of the following benefits associated to **land degradation** through better forest management:

- a. Improved management and restoration of watersheds, through rational land management and sustainable management of the plant cover and water complex in zones such as the Chota valley.
- b. Demonstration and active promotion of practices for maintenance, improvement and/or restoration, and facilitation of environmental services, particularly through the restoration of forest landscapes.
- c. In human settlements and their surroundings, demonstration and active promotion of the potential offered by the natural landscape, climate, culture, and the development of crafts using timber and non-timber species to develop tourism, whose prospects are promising for the area.

Table 22
Summary of goods and services provided by different types of forests

Forest type	Production of goods	Ecological services	
		Watershed protection	Biodiversity
Natural forest	Moderate	High	High
Secondary forest	Low	Moderate to high	Moderate
Enriched secondary forest	Moderate	Moderate to high	Moderate
Plantation-short rotation	High but low value	Low	Low
Plantation-long rotation	High, higher value	Low to moderate	Low
Plantation underplanted with non-timber forest products		Moderate	Low-moderate
Plantation- multi species		Moderate	Low-moderate

Source: ITTO

207. It is also expected that new knowledge and techniques and stronger institutional capacity provided by the project will have a positive impact on implementation of environmental regulations in the zone.

E. LINKAGES BETWEEN THE PROJECT AND OTHER SIMILAR INITIATIVES

E.1. GEF regional and national projects

208. The project will take account of the scope and area of influence of other projects financed by the GEF such as:

- (i) The National Protected Areas System (SNAP) (GEF \$8 million), which includes the two ecological reserves in the intervention area. These contributions will be used to fine-tune plans and methodologies for participative management, supervision of implementation of the management plans, and monitoring of biodiversity.
- (ii) As far as possible, the project will coordinate with the actions of the regional project, Proyecto Páramo Andino/UNEP-GEF. Although the present project will intervene only marginally in the páramo zone, it will use the results on managing that zone contributed by the UNEP project, particularly with regard to water resource management.
- (iii) The PIMS 3520 project (Adaptation to Climate Change through Effective Water Governance in Ecuador), whose objective is to reduce Ecuador's vulnerability to climate change by promoting the inclusion of climate risk in local and national water resource management plans, implementation of remediation measures, and dissemination of information and knowledge.

- (iv) Due account will be taken of the lessons learned from the GEF's small donations programme, which includes various operations for sustainable forest management and biodiversity conservation. Although they are on a small scale, these experiences can provide a wealth of lessons on institutional aspects, and on the validation of technical options.

209. The following table relates the priority areas for the STPE, projects, and players, with the different components of the Ibarra-San Lorenzo project:

Table 23
Harmonization table. Priority areas for the STPE, projects, players, and the Ibarra-San Lorenzo project

Plan Ecuador areas	Themes	Plan Ecuador: 21 st century projects	Players in implementation	Ibarra-San Lorenzo Development Project (framework project) <i>Project for Sustainable Management of Biodiversity and Water Resources</i>
Peace, security, and governance	Citizen security. Social coexistence	Binational cooperation. Working meetings. Social leaders from the border area	Ministries: MCSIE, Justice, Interior, External Relations, Defence Local governments Citizenry	
Access to justice, human rights, and humanitarian assistance	Strengthening of effective justice, respect for human rights, humanitarian assistance	Strengthening of justice services: mediation, conflict resolution, contingency plans, human rehabilitation Communities receiving refugees: health care, safe water, sanitation, employment, justice, and human rights	Ministries: MCSIE, Justice, Interior, External Relations, Defence Local governments Citizenry	Component 1: Citizenship and access to social benefits, ID cards, legal status of organizations, support for beneficiary selection of the human development conditional cash transfer programme <i>Local environmental management capacity (GEF)</i>
Economic solidarity, credit, and productive alternatives that create jobs	Technical support for productive, commercial, and services initiatives	Comprehensive territorial programme: development and poverty reduction Multi-sector training programs Winning producers and economic solidarity: value chains, markets, competitiveness.	Ministries: Production Coordination, MIES, MAGAP, MIC, Tourism, Labour BNF Local governments Citizenry	Component 3: Support for business ventures and financing for company development and value chains <i>Innovative initiatives for the conservation, restoration, and sustainable management of natural resources (GEF)</i>
Improvement of basic services	Improvement of health care, education, and safe water	Millennium Schools: infrastructure, teacher training, exchanges High performance sports centres Basic health equipment Basic sanitation equipment. Safe water, solid waste Well-being: nutrition, food, health care, urban environment, and local market	Ministries: Social Development Coordinator, Education, Health, Housing Local governments Citizenry	Component 2: Subprojects for managing natural and environmental resources that include improvement of the habitat <i>Local environmental management capacity (GEF)</i>
Biodiversity, environment, culture, and tourism	Strengthening of the environmental authority Promotion of culture, natural resources, and tourism		Ministries: Social Development Coordinator, Culture and Environment, Education, Health, Housing Local governments Citizenry	Component 1: Participative mapping: studies and maps of natural and cultural assets, vulnerability, responsibilities Component 4: Creative industries Products with identity, rehabilitation of the heritage, education for culture

Source: Technical Secretariat of Plan Ecuador.

E.2. Other significant natural resource management projects in the project zone

210. The project sponsored by IFAD and the GEF will complement productive initiatives for the recovery and management of secondary forests in the buffer zones of protected areas. In particular the project will establish synergies and coordinate activities where pertinent with other initiatives under way or recently-completed, such as:

- (i) The project on decentralization of natural resource management in three provinces in northern Ecuador—Carchi, Imbabura, and Esmeraldas (PRODERENA), co-financed by the European Union. This project has invested considerable sums to build the capacity of the different players involved in environmental management in local governments. Its successful initiatives as well as its failures should be examined and the lessons learned internalized by all the parties.
- (ii) The coastal management programme co-financed by the Inter-American Development Bank (IDB) in the marine and coastal regions of San Lorenzo.
- (iii) The project to improve living conditions for communities that are ancestral users of the mangrove ecosystem in the province of Esmeraldas, which is being implemented by the NGO HIVOS, with financing from the European Union and the German organization Agroacción.
- (iv) With regard to payment for environmental services (PES), the project will draw on the lessons learned from the experience of the municipality of Pimampiro (Imbabura) in watershed conservation and will contribute to the consolidation and systemization of the national Socio Bosque Programme, a very novel initiative in the world that has the potential to serve as a model for the REDD initiative. In particular, it will cooperate with indigenous communities (Awá and Chachis) for the productive conservation of native forests.
- (v) The programme for rural development of the northern region promoted by Belgian cooperation has been operational since 2009. It is a project to support consolidation of the implementation of rural development policies by building up rural government institutions
- (vi) Support for production chains and co-financing of productive investments. The project has four partners (SENPLADES, MAGAP, MIES, and CONCOPE) and covers four provinces, including the entire zone included in the present initiative. Obviously, close coordination and cooperation between the two interventions will be required.

211. The table below shows the relationships between local institutions and international cooperation agencies, indicating a series of cooperation processes that can be tapped for project execution.

Table 24
Institutional context and external cooperation

Plan Ecuador areas of intervention	International cooperation, other donors	Harmonization of the interventions of the Ibarra-San Lorenzo Development Project and other institutions	Contribution of the Project for Sustainable Management of Biodiversity and Water Resources
Peace, security, and governance.	UNDP. Peace and development project; actions to reduce conflicts, access to justice, safe cities, and territorial development.	The project is not involved in this line of activity.	Training in conflict resolution leads to better governance.
Access to justice, human rights, and humanitarian assistance	USAID/Esquel Foundation. Mediation and conflict resolution. UNHCR asylum, emergency economic support, and access to legalization services, information.	Medium Through support for public institutions in the regularization of citizen status, development of capacity for mediation and conflict resolution, and support in the field to enable citizens to apply for the national government's human	The project is not involved in this line of activity.

Plan Ecuador areas of intervention	International cooperation, other donors	Harmonization of the interventions of the Ibarra-San Lorenzo Development Project and other institutions	Contribution of the Project for Sustainable Management of Biodiversity and Water Resources
		development conditional cash transfer programme.	
Solidarity economy, credit, and productive alternatives that create jobs	USAID: Anchor companies and value chains. UNDP-FECD: Production and association. Belgium technical cooperation: Northern Ecuador development project. European Union/HIVOS: Improvement in living conditions for communities that are ancestral users of the mangrove ecosystem in the province of Esmeraldas.	High Through actions for entrepreneurial development and strategic partnerships which are also promoted by the central and regional governments and cooperation agencies.	Conservation maintains the base for the use of natural resources.
Improvement of basic social services	USAID/OIM Territorial infrastructure	High Through support for the improvement of human settlements by updating proposals for local development and processes to upgrade housing and develop neighbourhoods, communities, or enclaves.	The project is not involved in this line of activity.
Biodiversity environment, culture and tourism	European Union/PRODERENA: Decentralized management of natural resources GTZ. Natural resource management	High Through support for strengthening the environmental authority, know-how to manage natural resources on different levels, restoration of ecosystems, development of environmental services with emphasis on water resources, which are high priority areas for the region and for the Ministry of the Environment. High Through cultural and identity development, a response is made to the demands of public institutions and social organizations working on the recovery of the cultural heritage, education, and creative industries.	Promotion of incentives and payment for the provision of environmental services.

F. RISKS AND MITIGATION MEASURES

F.1. Risks of political instability and insecurity

212. The project's area of action in the northern border zone presents risks related to security that must be kept in mind. Along the border in the San Lorenzo zone, events associated with the armed conflict in Colombia could create insecurity and limit intervention capacity. To the extent possible, the initiatives supported by the project, in coordination with the Ecuadorian authorities, will be carried out in areas considered to be less exposed or vulnerable to these effects. The project will include the security parameter among its criteria for allocating resources.

F.2. Risks associated with climate change

213. The impact of global climate change on Ecuador can be seen in an increasing recurrence of dry events such as La Niña or extremely rainy ones such as El Niño (consequences of the cyclical movement of large ocean currents also known as ENSO or El Niño Southern Oscillation), both of which are possibly exacerbated by the effects of global warming and have a negative impact on the national economy.²⁰

214. The project will help to increase the resilience of ecosystems to these risks through biodiversity preservation, decreased deforestation, and mitigate their consequences through the demonstration of sound management practices of land use, protection of the drainage basins of watersheds, and promotion of projects to re-establish plant cover and carbon storage.

F.3. Institutional shortcomings

215. The Technical Secretariat of Plan Ecuador (STPE) is the project executing agency. It was created recently and reports to the Ministry of Security. It has inherited the experience of its predecessor, UDENOR. STPE has certain shortcomings in its technical and operating capacity and these weaknesses are risks that could affect project execution. As a mitigation measure, the STPE will implement an institutional capacity-building programme, with technical and financial cooperation from IFAD in order to improve its coordination and decision-making mechanisms to ensure that it and other strategic entities will be able to play a relevant role in the planning, monitoring, training, and decision-making processes.

F.4. Risks related to social participation

216. The project will promote social participation and support the building of natural resource management capacity, which will reduce the possible risk of lack of experience and adequate resources.

217. In San Lorenzo there is a possible risk associated with the presence of medium-sized and large companies whose economic activities are mining, largely uncontrolled extraction of timber and mineral resources, and also intensive cultivation of African palm. These activities could be attractive for the local population on the basis of short-term considerations who might reject regulation and control of the industries in question. Identification and development of alternative productive opportunities that help to reduce the local tensions caused by the attractions of extractive activities that jeopardize future development will be a mitigation measure.

²⁰ El Niño, for example, triggers floods, landslides, and soil erosion in areas not protected by plant cover, increases in diseases, etc.

F.5. Financial risks

218. Financing for initiatives is not sufficient to cover all community expectations and demands. A high level of disappointed expectations could lead some interested parties—public and private agencies and social and political players—to adopt negative attitudes that could limit the scope of project activities.

219. This risk will be mitigated through an appropriate information campaign on the scope of the project, the implementation of mechanisms for participation and execution of activities, shared decision making, and due accountability. The investments will be made to the benefit of the target population and STPE has a high profile of pertinence and consistency that can be used to achieve replicability and sustainability.

220. The leadership and presence of STPE, with its special attention to the northern region that is shared by the international community, ensures that complementary investments will be made in the region, such as the recent debt swap negotiation for nearly US\$25 million by the Spanish government, which will be used by STPE.

F.6. Difficulties related to innovative schemes

221. Payment for environment services (PES) mechanisms require users to adequately internalize the importance environmental services and to engage them in conservation practices. PES schemes also require effective tools for channelling investments and for transferring payments to users. As mentioned above, the Project does not aim to set up a new PES/RES system, choosing instead to support an already established mechanism, **Socio Bosque**, as this is considered as more effective and cost-efficient.

222. Possible risks, such as low involvement of participants, will be addressed through training and education activities. The project will also ensure that the location and spatial concentration of actions facilitates the establishment of a critical mass of visible results. The level of participation by the beneficiaries and the organization of exchanges of experiences and socialization and communications activities will contribute to the due spread and adoption of SLM/SFM outside the demonstrate area.

223. Table 25 lists and classifies those risks identified for this project. Although some risks are rated as moderate, the project's overall sensitivity is relatively low as a result of the institutional anchorage of the project and its participative approach, and because of the objectives themselves, which are intended to reduce the vulnerability of the environment and of populations that depend on it.

Table 25
Evaluation of risks and mitigation measures

Risk	Level	Vulnerability	Mitigation measure
1. The sustainable management of natural resources and poverty alleviation becomes less important in national policies.	M	L	Political commitment has become even stronger in recent years, civil society is more alert to environmental issues. The northern region enjoys special attention because of its strategic importance to the county.
2. Drastic climate change (e.g. prolonged drought)	S	L	The project helps to strengthen the measures for adaptation to future climate change by promoting collective action for adequate management and conservation of soil and water resources, etc. The demonstration effect of the pertinence of the new practices should be even more visible under adverse conditions.
3. Execution in the field is hampered by bureaucratic obstacles	M	L	Participation by the parties involved in the design, implementation, and monitoring of the subprojects will ensure a suitable level of control, with due pressure on institutions to comply with their commitments. Streamlined administrative procedures will be adopted in the project execution manual.
4. Insufficient capacity or shortage of technical personnel	M	L	In addition to the decentralized staff of the sector ministries, which will be strengthened through adequate thematic training, the project will mobilize national development research institutions and specialized NGOs.
5. The environmental benefits are insufficient to attract attention and spur the adoption of best practices.	M	L	The level of participation by the beneficiaries and the organization of exchanges of experiences and socialization and communications activities will contribute to the due spread and adoption of SLM/SFM outside the demonstrate area.
6. The direct beneficiaries and local institutions are only motivated by short-term benefits.	M	L	Training and education activities and the careful selection of participants will help to mitigate this risk.
General assessment	M	L	
<ul style="list-style-type: none"> • Abbreviations: H (high), S (substantial), M (moderate), and L (low). The word ‘risk’ refers to the possibility that the hypotheses underlying the logical framework do not materialize. • The notion of vulnerability is intended to reflect the expected capacity of the project to mitigate/adapt to the risks identified. • SLM = sustainable land management; SFM=sustainable forest management 			

G. SUSTAINABILITY AND REPLICABILITY

224. The results of the intervention can be expanded and outscaled due to the nature of the design, which includes learning from other projects in the zone and the approaches of the present project. One key aspect for replicability is the representativeness of the zone selected, whose environmental, social, and economic characteristics are similar to a large part of the border zone and other zones where mosaics of tropical and Andean ecosystems exist.

225. Therefore, the proposals on alternative forms of use and management of natural resources, such as sustainable practices, management plans, co-management, payment for environmental services, and waste management are applicable to other similar zones. The strengthening and training for local environmental authorities can lay the groundwork for regional and national processes to support the environmental authority

226. The plans to exchange experiences will contribute to the dissemination and promotion of the results, impact, and lessons learned from the project. The project will identify and document best practices, establish agreements with interested parties in similar zones to promote replication and support among institutions, and foster the inclusion of learning in national public policy.

227. One condition to ensure that the actions undertaken by the project can transcend the local level, going beyond the family unit or community, lies in the strengthening of organizations to coordinate permanent learning processes and networks. It is necessary to surmount the limitations of other experiences that have aspired to replicability through formal teaching methods and the use of didactic resources.

228. The lessons learned on how production and value chains have been built between regional and national producers corroborate these affirmations. For example, producers from the project zone participate in the frijoles chain and, with the involvement of hundreds of producers, they have been able to obtain favourable marketing conditions. The coffee and cacao chains also offer a wealth of lessons learned.

G.1. Institutional and social feasibility

229. An alarming degree of fragmentation has been observed in the project zone, as noted in the project document and in the working papers. The STPE has taken on the challenge of bringing social and territorial cohesion to the region. Here it is fundamental for the project to focus on the region's dynamics, through the planning established in SENPLADES new land management plan, which contains a series of actions and goals for strategic interventions.

230. In the extent to which project activities contribute to the regional planning effort, its actions will be substantially aligned and its contributions will form part of the undertakings of society and the state, transcending one-off actions that last only for the time the project is present, and turning them into medium- and long-term goals.

231. Another aspect along this same line, involves the powers that the constitution confers on local governments and public sector institutions in general, which are to be regulated and legislated this year in accordance with the guidelines established by the National Assembly. These directives will also promote the strengthening of local institutions and make for better use of resources.

232. The roles played by the government and its institutions are conditions for the feasibility of development. However, in this particular case, the successful implementation of the project hinges largely on the population and its formal and informal mechanisms for addressing the region's challenges, recognition of its capacity, and encouragement for ventures that are an important starting point.

233. The strengthening of capacity and exercise of power by society have an historical advantage given that the constitution recognizes and demands recognition of diversity and participation by all players in public life as a sufficient condition for the exercise of citizenship.

G.2. Environmental feasibility

234. In the public consultations with stakeholders in the Chota valley, Lita, and San Lorenzo, the efforts and concepts of conservation and recognition of the wealth of biodiversity that have been cultivated among the population are noteworthy. One of the dynamics used in the work to design the project, tapped this wealth through the use of talking maps, where the participants draw what the community was like, how it is today, and how they would like it to be in future. The results of this exercise are summarized below.

235. The communities recognize that in the past, natural wealth and biodiversity existed that guaranteed better conditions of production and climate stability, water availability, presence of wild animals, fish, plants in the mountains, and more.

236. They recognize that these conditions have deteriorated today and that as a result they have problems with production, and shortages of water and building materials.

237. The loss of plant cover is identified as one of the main causes of environmental deterioration. They also realize that burning to clear fields has gradually led to the deterioration of soil quality.

238. From the standpoint of what they would like the community and its territory to be like in the future, the two concepts of before and today are combined in a complex vision that involves rehabilitation and changes in crop systems, accompanied by the incorporation of modern technology for better use of resources including water and land, and the reintroduction of trees with crops, which suggest the restoration of natural resources to their original state.

239. In addition, practices of conservation and sustainable use of natural resources are followed on the farms of producers who are gradually persuading new producers to incorporate these working methods. They constitute experiences that mark a path for the project.

240. The development of standards, laws, agreements and other forms of consensus for sustainable environmental management should be added to these considerations. The constitution, as mentioned throughout this paper, is in essence a mandate for conservation, given that it recognizes the rights of nature and provides for mechanisms for its protection and care.

241. The concepts, practices, and legal rules that one segment of the population follows in their daily lives culminate in environmental feasibility as a purpose of the project. However, that segment may undertake new forms of exploitation on their farms if they find that certain products are more profitable, such as African palm or monocultures in general, which additionally have very flexible market mechanisms.

242. This risk dynamic is present in ways of exploiting mineral wealth that have appeared with great force in San Lorenzo canton, where small-scale mining operations are highly polluting, affecting water and soil in particular.

243. The sustainability of the project's actions is based on the geopolitical interest that exists along the Ibarra-San Lorenzo corridor and that translates into the implementation of different investment programs by different players—governmental, international cooperation agencies, and NGOs. The project has been designed to be participative and consensual, and therefore it is aligned with the needs, interests, and development prospects of the players in the intervention zone, and national environmental policies.

244. The project is intended to bolster capacity on two key levels: meso and national on the level of the environmental authorities and sectional and local entities by training local leaders, interest groups, and communities in general for empowerment and ownership of the proposed actions. The development of rules for adequate management of natural resources in the zone and to settle conflicts over their use, ensures that good practices in conservation and use of resources in the zone will become institutionalized.

245. The benefits in terms of income and ecosystem services that will be generated by the involvement of local groups in processes of payment for environmental services constitute a solid incentive to continue these actions in future. Further, these processes are already institutionalized on the public policy level and therefore their future sustainability looks very bright.

III. INSTITUTIONAL FRAMEWORK AND MANAGEMENT MECHANISMS

A. BASIC COMMITMENTS AND LINKAGES

246. In a note of 21 April 2008, the Minister of Internal and External Security Coordination asked the Minister of Finance to inform IFAD that the government of Ecuador (GOE) was of the opinion that the entity acting as the coordination unit of the Ibarra-San Lorenzo Development Project (including the Project for Sustainable Management of Biodiversity and Water Resources) should form part of the Technical Secretariat of Plan Ecuador (STPE).

247. The democratic reform of the State launched the redesign of the structure of the executive branch and of the ministerial portfolios. The Ministry of Internal and External Security Coordination has been assigned the mandate of coordination, monitoring and evaluation and the line departments are responsible for execution and monitoring, which serves as the framework for the specific project activities.

248. From this standpoint, it should be underlined that the STPE has begun a strengthening process that will contribute to institutional consolidation and positioning in the northern border region and, in general, to the institutional structure of the GOE. This initiative includes three activities: (i) institutional development of the STPE and its alignment with national and regional policies; (ii) strategic management considering the regional institutional framework and other social players; and (iii) the development of institutional networks to reinforce the capacity of the STPE.

249. The operating structure covers aspects relating to external cooperation as part of the responsibilities assigned to the STPE through the Planning Directorate, to process and plan actions based on information on citizen requirements, needs, and aspirations from the standpoint of complying with the guidelines of Plan Ecuador on the northern border. Three technical units exist for this purpose: (i) programming and projects; (ii) coordination and consultation; and (iii) national and international cooperation.

250. The National and International Cooperation Unit has the following responsibilities: (i) to maintain information on donors; (ii) to identify opportunities for international cooperation; (iii) to report on international cooperation activities and reimbursable and non-reimbursable financial assistance; (iv) to implement mechanisms for coordination with the Ecuadorian International Cooperation Agency (AGECI), the National Development Planning Secretariat (SENPLADES), and the Ministry of Finance to optimize management of external cooperation and accelerate project execution; (v) to prepare studies on trends in international cooperation; and (vi) to prepare protocols on compliance with the regulations governing relations with different national and international authorities.

251. Accordingly, in its Act of Organization the STPE institutionalizes mechanisms for linkage and coordination with national entities in charge of reimbursable and non-reimbursable international cooperation, such as the Ministry of Finance and SENPLADES-AGECI, respectively.

252. The linkage of the project shown in the following table illustrates the alignment of the Ibarra-San Lorenzo Development Project and the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor with the programs prioritized by the national government through the STPE in central aspects such as human rights, economic development, access to basic social services, management of natural resources and cultural development, in the framework project and, in particular, in the aspects that relate to the incorporation of biodiversity conservation and the sustainable use of natural resources into local practices, support for sustainable forest management in the production of landscape, promotion of incentives and payments, and project management in the

case of the GEF-financed project, which points to the consistency and pertinence of the project in the national, regional, and local contexts.

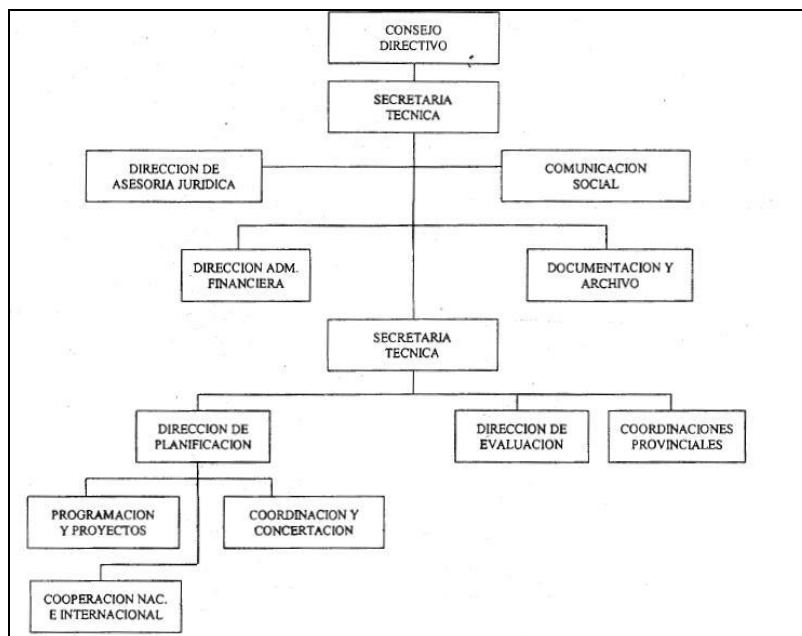
B. INSTITUTIONAL FRAMEWORK FOR PROJECT MANAGEMENT

253. The National Technical Secretariat for Human Resource Development and Public Sector Wages (SENRES) performed a legal and technical analysis of the STPE project on organizational management by processes, which includes a portfolio of institutional products and services that reflects its legal base and responsibilities as established in Article 113 of the Enabling Regulations of the Civil Service and Administrative Career and Unification and Standardization of Public Sector Wages Act (LOSCA) and the provisions of the Technical Standard for the Design of Studies and Regulations for Organizational Management by Processes.

254. It has also been verified that la SENRES established the requirements for the positions that are strictly necessary to operate the administrative units of the institution in question and remitted a draft organization act so that the corresponding budget could be issued in accordance with the authority established in the LOSCA.

255. The Technical Secretariat of Plan Ecuador has an Organization Act that governs it whose structure is presented below.

Figure 6
STPE organization chart



Source: Technical Secretariat of Plan Ecuador. 2010.

256. Structural levels: (i) *Policy and strategic direction*. The Board of Directors is responsible for institutional leadership in key themes for northern Ecuador such intervention policies, periodic planning and evaluation of institutional interventions, the security and development situation, and coordination of oversight to support implementation of Plan Ecuador, the latter as a complement to and consistent with the constitutional mandate. (ii) *Executive*. The Technical Secretariat is responsible for directing planning, coordinating, monitoring, and prioritizing the programs, subprograms and projects carried out by the institution. (iii) *Operations*. This level directs planning and coordination for the implementation of plans, programs, and projects for peace and development of the northern

frontier and for supervision and evaluation on the provincial level. (iv) *Management and operational support*, through entities that facilitate institutional work, such as the legal advisory, operational and financial administration, and social communications areas.

257. In this context, the STPE has the necessary institutional platform in its capacity as a public institution responsible for project execution and based on the arrangements and conditions established in the loan contract to be signed by IFAD and the GOE, and the Donation Agreement with the GEF.

C. ARRANGEMENTS FOR PROJECT EXECUTION AND THE WORK PLAN

C.1. Aspects related to the procurement and contracting processes

258. As a result of the official formalities with the Ministry of Finance, the STPE has been included in the integrated public sector financial management system (SIGEF) and the institution's budget was included in the system for 2008. This instrument is used to report current expenditures and investments electronically, which include the specific projects carried out by Plan Ecuador. To comply with SIGEF rules, the Ministry of Finance provided the Secretariat with an access code to operate its budget in the system.

Box 3. Integrated public sector financial management system (SIGEF)

The integrated financial management system (SIGEF) is a computerized tool that works over the Internet and forms part of the comprehensive solution for the development of the public finance administration system. It brings together a set of services that include data reporting, operation, control, and consultation by institutions in the country's non-financial public sector, in order to turn the public administration into a mission at the service of society, under conditions of transparency, discipline, and control, to achieve optimum levels of efficiency and effectiveness.

Technical and financial advisory service. The public sector finance system demands a high degree of commitment from government institutions in the application of common rules and procedures in order to have technically-structured data that permit financial information to be obtained on the national scale. The Public Financial Management Coordination Office has a permanent group of specialized professionals who support government institutions to enable them to adapt and adequately apply the financial processes that govern the system.

Training. As in all information systems, success in applying the public finance system depends fundamentally on the degree of knowledge and experience of the people responsible for its operation and administration, so they can provide positive support for the data reporting, updating, and presentation that the system demands.

Support. Experience and shared criteria in applying the rules and the use of procedures and tools permit the SIGEF's technical experts to respond to questions and concerns, clear up doubts, and find solutions to work problems.

The Public Financial Management Coordination Office uses a variety of mechanisms to provide timely technical assistance for users:

- National toll-free-line: 1-800-SIGEF (1-800-744333)
- Direct technical assistance (on site)
- Direct technical assistance (Ministry of Finance installations)
- Technical assistance through a direct connection via Citrix
- Technical assistance through a remote connection via RAS

259. Each investment project in SIGEF's database is included as a subproject with its corresponding code, broken down into components, subcomponents, and activities for each year, which are programmed every four months to enable financial control to be monitored.

C.2. Administrative and financial structure of the STPE

260. The Administrative Directorate of the STPE is responsible for managing financial, material, and human resources. Its main functions include: (i) the establishment, application and control of institutional financial policies and guidelines; (ii) management of financial resources; (iii) participation in the Contracting and Procurement Committee, in accordance with the procedures established in the Public Procurement Act and its enabling regulations; and (iv) compliance with the Civil Service and Administrative Careers Act.

261. The directorate has six units: (i) the budget unit, responsible for establishing the pro forma budget, amendments, and budget execution; (ii) the accounting unit, which keeps the accounting records and financial statements and conciliations, and the inventory of the institution's moveable and immovable goods; (iii) the cash administration unit, responsible for recording, updating, and reporting on cash flows and transfers made; (iv) the institutional services unit which is responsible for preparing and implementing the procurement plan for goods, suppliers, and consumables, and maintenance of moveable goods and vehicles; (v) the technology management unit which is responsible for implementing the information platform and for maintaining software and hardware and the institution's web page; and (vi) the human resources administration and salaries unit which implements the internal personnel regulations.

262. At the end of the second half of each year in accordance with the public sector's budget rules, the STPE remits the work plan for the following year to SENPLADES and the latter prepares the annual investment budget and remits it to the Ministry of Finance which, after a technical and financial analysis, includes it in the pro forma budget which, once approved, becomes the official government budget. The annual work plan includes the budgets for each project, establishing the source of financing, which could be government funds, external or internal loans, or non-reimbursable funds, and their destination, which could be for current expenditures or investments. This ensures that a budget will be available for the national counterpart.

C.3. Operating arrangements

263. The Organization Act governing the STPE defines its administrative and financial management process, and the flow of funds is regulated under resolutions issued by the SIGEF, the Financial Administration and Control Act, the Act in respect of the National Comptroller General's Office, the Public Sector Budget Act, and the provisions contained in the agreements and contracts relating to non-reimbursable resources and loans, respectively.

264. To make transfers of financial resources from the project to beneficiary organizations or groups, an agreement will first be signed by the parties establishing the corresponding obligations, and then the disbursements will be made through the SIGEF to a current account opened by the beneficiary organization or group in a recognized financial institutions. The transfers will be made by the project administrator in the STPE in accordance with the rules governing the SIGEF.

C.4. Technical and managerial compatibility with national systems

265. Two instruments will be used to coordinate the project in this area: (i) multi-annual plans (MAPs) are prepared by each of the institutions in the non-financial public sector each year (in this case the STPE). The plans establish the objectives, goals, and indicators, beneficiaries, projects, and activities to attain the objectives. The MAPs are recorded in the information system administered by SENPLADES, known as SISPLAN; and (ii) the annual working plans (AWPs) which are prepared by institutions in the non-financial public sector (in this case the STPE) and are also registered in SISPLAN. These plans include the projects, define the objectives and their indicators, and qualitative and quantitative goals. These instruments are used to evaluate progress periodically.

266. The Project for Sustainable Management of Biodiversity and Water Resources embedded in the Ibarra-San Lorenzo Development Project will be included in the MAP and in the AWP's of the Technical Secretariat of Plan Ecuador. AWP's will require IFAD's prior review for expense eligibility purposes.

267. In addition, Ecuador implements a mechanism for information on the presidential goals defined for government institutions, including their respective investment budgets. The institutions report periodically on-line about progress, restrictions, and alerts relating to compliance. This tool is intended to monitor and strengthen institutional capacity, serve as a means of accountability to the public and other oversight agencies, and establish a virtual space for interaction to solve any difficulties that may arise. Since it is on-line and offers a forum for consultation over the web, the system can provide information on physical and budget execution updated in real time.

268. Since the STPE is included in this mechanism, it reports its physical and financial progress and in the future will include this information about the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo corridor.

C.5. Interface for coordination with the GEF-financed project

269. Attention will be paid to the guidelines for coordination between the Natural and Environmental Resource Management Component and the Sustainable Management of Biodiversity and Water Resources Project in the Ibarra-San Lorenzo Corridor Project. The project's coordination unit (PCU) will make sure the Operations Manual fully complies with an adequate and coordinated implementation between them. The following provisions are spelled to that end.

270. Externally, the donation will be channelled through an GEF-IFAD unit.

271. At the government level, the regulations governing the Ecuadorian International Cooperation Agency (AGECI) and the Budget Act will be followed, as they relate to donations.

272. Institutionally, the Ibarra-San Lorenzo Development Project, which includes the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor, will be aligned to Plan Ecuador, with which planning, programming, budget, and monitoring and evaluation mechanisms will be established.

273. Financial management will conform to the SIGEF guidelines. As it is customarily done, SIGEF requires that sources of financing (IFAD, GEF, and GOE) are handled according to regulations. The PCU will report financial management to the Technical Secretariat of Plan Ecuador.

274. Coordination among the components of the project financed by IFAD and the GEF will be established in the project's Operations Manual. The Operations Manual will be cleared with IFAD's prior review at project's start for expense eligibility.

IV. PROJECT COSTS AND FINANCING

A. ACCOUNTING AND FINANCIAL MANAGEMENT

A.1. Accounts and accounting management

275. Accounts. A designated account will be opened for the GEF donation which will be separate from the IFAD loan account. The designated account will be acceptable to IFAD. This account will be opened at the Banco del Ecuador and can be monitored for accounting purposes by IFAD or the GEF. The account holder will be the STPE. In its turn, the STPE will open another account in the national banking system which will be acceptable to IFAD for the proceeds of the GEF donation.

276. There will be two expenditure categories: (a) Institutional Strengthening and Sustainable Management of Biodiversity and Water Resources; (b) Environmental Services Subprojects. Expenditures from the donation are tax exempt.

277. **Accounting management.** The project will be implemented under the following arrangements:

- a. The GEF funds will be managed separately from the IFAD loan proceeds.
- b. The Project Coordination Unit (PCU) will prepare the AWP for registration at the STPE. The AWP will spell out the requirements of the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor.
- c. The AWP will be subject to prior review by IFAD. The eligibility of the expenditures requested and the procurement methods will be determined at that point. Procurement will be aligned to Ecuadorian regulations for ease of implementation.
- d. Once the AWP clearance has been obtained from IFAD, it will be registered at the STPE.
- e. Once the AWP has been included in the Ecuadorian national accounts, disbursements will be granted through the single treasury account.
- f. The single treasury account will be monitored through the SIGEF, which is the agency that gives permission for electronic disbursements.
- g. Expenditures under the proposed project will be monitored through replenishment requests to the GEF, which may not be less than US\$400,000 nor more than the authorised amount in the Financial Agreement. The replenishment requests will be addressed to IFAD.
- h. Procurements will be made through Ecuador's procurement system (SICOF) and the arrangements necessary will be made in a timely manner.
- i. The requests will be documented as required in regular accounting standards. Budget allocations will be made in accordance with the categories established for the donation. The monitoring and steering unit which forms part of the PCU will prepare reports every semester. Monitoring will be the responsibility of the Director of the Ibarra-San Lorenzo Development Project.

B. FINANCING AND INCREMENTAL COST

B.1. Financing

278. The proposed project consists of four components. The corresponding activities have been taken into account for each component. The costs of project activities were calculated in current costs. Foreign exchange has been included in the investments in equipment and vehicles, based on the relative weight of the component.

279. **Total costs of the combined project and associated cofinancing.** The total cost of the combined project (Ibarra-San Lorenzo Development Project and GEF associated project) will be **US\$ 18.75 million.**

280. **GEF financing and cofinancing.** The overall Ibarra-San Lorenzo Development Project will total **US\$ 18.75 million.** with contributions from IFAD (US\$ 12.825 million, which represents 68% of the total project cost); the GOE (US\$ 2.24 million or 12% of total cost); the beneficiaries (US\$ 783,000, 4% of total cost), and local governments (US\$ 198,000 or 1% of the total). The GEF will contribute with US\$2.7 million (representing 14% of the total cost), through the Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor Project.

Table 26
Financing of the overall Ibarra-San Lorenzo Development Project*

	Foreign	Local	Total	Percent
FIDA	150	12 675	12 825	68.4
GEF	-	2 700	2 700	14.4
Beneficiarios	-	783	783	4.2
Gobiernos Locales	-	198	198	1.1
Gobierno del Ecuador	-	2 244	2 244	12.0
Total	150	18 600	18 750	100.0

281. **Costs by component of the GEF project.** The total costs of the GEF project (Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor) have been estimated as US\$2.7 million for a five-year period. The Local Environmental Management Capacity Development component accounts for US\$494,000 or 18.3% of the total GEF contribution. The Investment (for SLM/SFM) component represents US\$1.13 million or 41.8% of the GEF grant. The Incentives for Productive Conservation component will cost US\$872,000 (32.3%). Last, the Project Management component will cost US\$204,000 or 7.6% of the total GEF grant, a figure that is justified by the peculiar difficulties (access, diverse ethnicity) presented by the area and the associated costs of monitoring and supervision. (see annexes 3 and 7 of the PDR).

Table 27
Costs per component
Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo corridor (in US thousands)

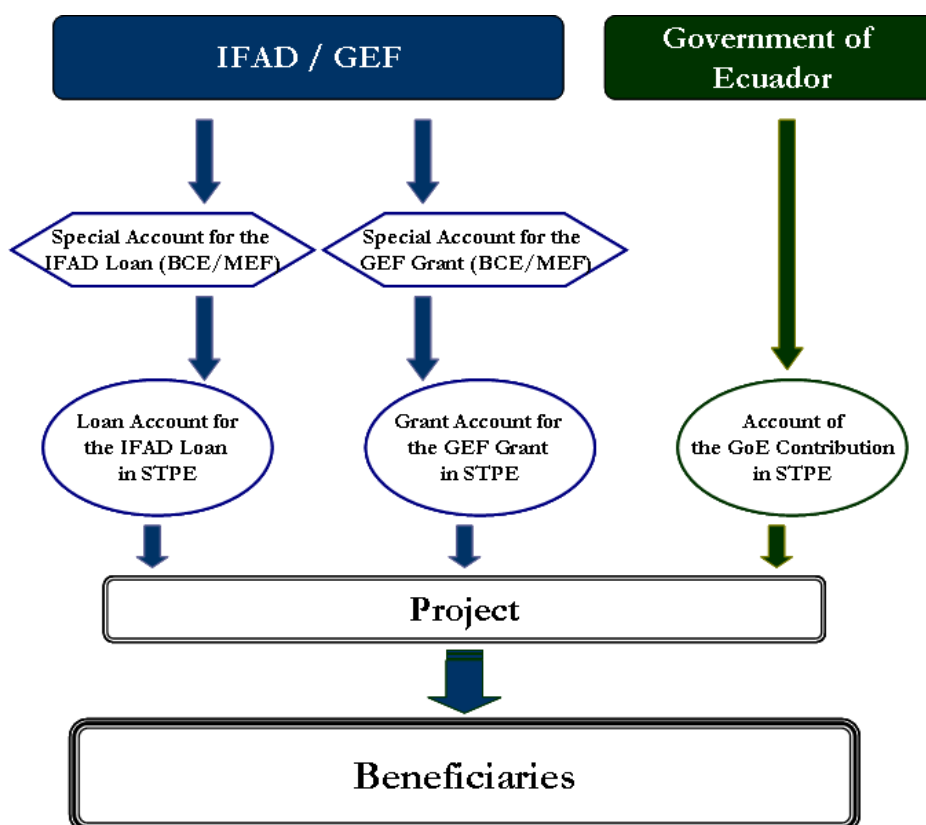
	GEF	
	Amount	%
Local Environmental Management Capacity	494	18.3%
Innovative Initiatives for Natural Resource Conservation, Restoration, and Sustainable Management	1130	41.8%
Incentives for Productive Conservation	872	32.3%
Project Management	204	7.6%
Total Project	2700	100.0%

282. **Costs by category of the GEF project.** Two expenditure categories have been included as follows: Institutional Strengthening and Sustainable Management of Biodiversity and Water Resources with an amount of US\$ 698,000 (26%); and Environmental Services Subprojects, US\$2 million (74% of total grant).

Table 28
Costs by spending category
Project for Sustainable Management of Biodiversity and Water Resources in the
Ibarra-San Lorenzo Corridor

	GEF	
	Amount	%
Institutional Strengthening and Sustainable Management of Biodiversity and Water Resources	698	25.9
Environmental Services Subprojects	2,002	74.1
Total Project	2,700	100.0

Figure 7
Flow of funds



B.2. Incremental cost

283. **Activities.** The activities in the proposed project have been grouped by component. They have their corresponding outcomes and targets whose costs have been estimated in function of existing information. The cost baseline has been taken from official Ecuadorian government documents.

284. **Baseline.** Good project design demands a full understanding of and linkage to the course of events that threaten the global environment, to demonstrate that the proposed activities will reduce or eliminate those threats. This course of events is the baseline and it is expected that each activity will be meaningful in terms of the baseline to which it refers.

285. **Complementary and substitute activities.** For each activity, an exercise has been performed to identify whether it is intended to add something without changing the baseline or to replace the baseline with something better. For example, a typical complementary activity in biodiversity is a conservation activity that does not have a direct impact on other economic activities. A substitute activity is one that generates environmentally friendly changes in the way of doing business.

Box 4. How to distinguish between complementary and substitute activities

Complementary activities

If the activity is complementary, that complementarity will be determined through the following questions.

Q1. What evidence exists to show that the amount financed by the GEF is genuinely incremental, without limiting or deleveraging other existing financings? What assurances exist for the continuity of existing financing by government or other agencies that had previously financed similar activities (e.g. protection for a national park)?

Q2. What would adequate beneficiary co-financing be and how will mechanisms for cost-recovery be built to encourage environmental responsibility and financial sustainability in the absence of GEF support?

Substitute activities

If an activity is a replacement, the stress will lie on describing and costing the baseline (all the activities that will be substituted or affected by the project). Before the project is submitted to a work programme, a boundary system is required to capture the main effects that will have to be described.

Note that it is not so much the ‘type’ of activity that determines whether it is complementary or substitute, but rather the situation or context in which the activity is carried out.

Source: Streamlined Procedures for Incremental Cost Assessment. GEF, 2007. Investing in Our Planet en <http://www.thegef.org/>

286. The following table breaks down the activities proposed for the project.

Table 29
Complementary and substitute project activities

Activity	Complementary or substitute
Increase in local practices to conserve biodiversity and for the sustainable use of natural resources	Substitute
Training for the deconcentrated bodies of the MAE	Complementary
Monitoring systems applied in REMACAM	Complementary
Increased environmental education	Complementary
Reduction in soil degradation through the use of sustainable management techniques	Substitute
Increase in sustainable techniques applied to forest management, including the forests of the Awa and Chachis peoples	Substitute
Support for execution of the REMACAM management plan	Substitute
Innovations in waste management and charcoal replacement in the project area	Substitute
Incentives for productive conservation	Substitute
Project is executed effectively and efficiently	Complementary

Source: Own

C. PROCUREMENT, ACCOUNTING AND AUDITS

C.1. Procurement

287. **Goods.** The goods to be procured with the donation include vehicles and boats, tools, equipment for forest guards, and office equipment. National price comparisons will be used for these contracts. The remaining procurements will be made through direct contracting under the public procurement system.

288. **Environmental investments.** This category includes the following eligible costs: plantlets, organic fertilizer, land management plans, forest management plans, equipment to replace charcoal, and solid waste management. These procurements will be made through national price comparison and direct contracting. Co-financing in land purchases, leasing, and payments will also be eligible as payment for environmental services in the project area. Such procurements will be transferred to the local authorities in ownership (municipalities and provincial governments). Transfer payments to Socio Bosque are also eligible in this category, which will be made directly, without bidding, against that institution's AWP.

289. **Studies and training.** Consulting services, training workshops, and technical and accounting audits are eligible in this category. They will be obtained through direct contracting under the public procurement system.

290. **Incremental technical personnel.** The cost of contracting national technical personnel, community promoters, and per diems for field missions will be eligible in this category. Direct contracting will be used under the public procurement system.

C.2. Auditing

291. The GEF donation will be audited separately from the IFAD loan. Audits will be performed annually to verify the handling of accounts, their allocation, and the eligibility of expenditures. These incremental audits have the objective of overseeing proper application of the clauses in the donation agreement.

V. SUPERVISION, MONITORING AND EVALUATION

A. SUPERVISION

292. Supervision will be performed through project missions and will coincide with those of the IFAD associated project in order to optimize interaction and synergy between the two operations, which are closely complementary. The results of the supervision reports will be made available to GEF and to other partners and entities that cooperate with the project.

293. Strong participation by national institutions, particularly the MAE, is expected during the annual supervisory missions and in the mid-term strategy review mission, as a minimum.

294. Project monitoring and evaluation will be carried out following the IFAD guidelines contained in the guide for project monitoring and evaluation and GEF methods and tools²¹.

295. Based on a detailed annual budgeted work plan, a detailed semi-annual plan will be prepared of the activities to be carried out. The second semester will include a review of work done since the start of the year. The reports will be sent to IFAD with copies to national counterparts for their information, review, and recommendations.

296. As part of normal monitoring activities, IFAD will assign technical staff and consultants to make field visits, observe, and report on project progress, achievements, difficulties, and lessons learned.

B. MONITORING AND EVALUATION

297. This section is related to the monitoring and evaluation of the project itself and the support to be provided for monitoring and evaluating protected areas, whose details can be found in Annex 6.

298. Monitoring and evaluation of the Project for Sustainable Management of Biodiversity and Water Resources will form part of the Ibarra-San Lorenzo Development Project, which will begin one year earlier. In both cases, the following guidelines will be taken into account in the design and application of the monitoring and evaluation system.

B.1. Objectives

299. The objective is to provide general guidelines to facilitate the design of a monitoring and evaluation system to be established by the STPE for the proposed project. The system was designed based on the guidelines for impact monitoring and evaluation for management by results, the framework of the results and impact management system (RIMS), and the recommendations of the Regional Monitoring and Evaluation Programme (PREVAL). The system will take the SENPLADES supervision and evaluation system into account.

300. The monitoring and evaluation system will be the main instrument for project management and will be included in the management information system (SIG) that the STPE will use to operate the project, with a view to attaining the project objectives. The SIG will be the main management instrument for decision making based on the approved AWP and budgets. Also, through PREVAL, IFAD will support the development and strengthening of a national indicators system for SENPLADES.

²¹ The GEF Monitoring and Evaluation Policy, GEF Evaluation Document No. 1, 2006

B.2. Main characteristics

301. The system will be implemented during the first six months of the project. One initial activity will be to adjust the logical framework, examining its consistency and the objectives, goals, and specific site indicators and the construction of chains of results depending on the target groups.

302. This will be done through participative workshops which include staff and representatives of the project beneficiaries. The monitoring and evaluation system will support the STPE in creating a system that will be compatible with the national system.

303. The review of the logical framework will include the establishment of: (i) the main monitoring and evaluation activities and who will be responsible for performing them, (ii) the commitment by the stakeholders to participate in monitoring and evaluation and the information they require and at what frequencies; (iii) the instruments necessary to compile information on the different project activities and ensure that the proposals made by the project beneficiaries are monitored through profiles and business plans, etc.; and (iv) the guidelines for systemizing the information, particularly in terms of format and content for the different reporting requirements.

B.3 Monitoring and evaluation system of the national protected areas system (SNAP)

304. The monitoring and evaluation system of the national protected areas system (SNAP) is intended to examine the effectiveness of the management of protected areas in Ecuador. It works on three levels:

1. Monitoring of the annual work plan through activities monitoring and results evaluation reports (protected areas planning system–SIPAP).
2. Measurement of management effectiveness of the SNAP.
3. In general, a good monitoring and evaluation process is impartial, useful, credible, participative and provides feedback. It is simple and systematic. These characteristics also apply to the monitoring and evaluation of the management of protected areas.

305. Within the buffer zone of the RECC, the project will provide support to the MAE in preparing and monitoring forest and land management plans, which will strengthen the capacity of the sector committees to monitor and enforce the SNAP regulations.

306. At the same time, the Management Effectiveness Tracking Tool, developed by WWF and the World Bank, is going to be incorporated to specifically monitor and report on the management of a protected area over time.

307. **Monitoring and evaluation of management in Ecuador.** In Ecuador different experiences have been developed in the use and adaptation of monitoring and evaluation methods in protected areas. The first that we know of was carried out in Galápagos National Park in 1995, covering the period since the launch of the second management plan in 1984. The results of the evaluation were used to update the park's management plan in 1996. The basic methodology was the one developed by De Faria (1993) with some variables modified to suit the island nature of the park (Cayot y Cruz 1998 and Amador et al. 1996).

308. Today, the Ministry of the Environment, as the country's environmental authority, is in a process of formulating a method for evaluating the effectiveness of management in the SNAP. The procedures have not been published yet, since the experts in charge of the process plan to carry out a pilot test of the methodology in two protected areas in the national system, before the dissemination, consensus, and official adoption stages.

B.4. Assessment of Global Environmental Benefits (GEBs).

309. The global environmental benefits are mainly derived from the restoration and/or improvement of ecosystems integrity (health, stability and connectivity).

310. As mentioned above, the project will act on three strategic axes : (i) biodiversity preservation; (ii) combating land degradation through demonstrating SLM practices for improved watershed management, and (iii) fostering SFM mainly through support to an existing national PES system (Socio Bosque Program). The results obtained on those axes will lead to global environmental benefits (Annex 5) that will be tracked by an appropriate and combined array of indicators. The initial indicators for the different GEBs are presented in Annex 6.

311. The **baseline** (environmental survey) will be undertaken within the first year of the project, as is the standard practice of IFAD. This survey will overcome the current lack of reliable quantitative data on the baseline situation and will provide a clear set of verifiable indicators that can be used to measure the expected changes due to project supported activities.

B.5. Evaluations and special studies

312. As mentioned earlier, the Ibarra-San Lorenzo Development Project will contract the baseline studies, which of course include the requirements for the natural and environmental resource management component included in the Project for Sustainable Management of Biodiversity and Water Resources, the survey for the RIMS system, the monitoring and evaluation system, and the geographic information system, which will be placed on line with SENPLADES monitoring and evaluation systems.

313. The Project for Sustainable Management of Biodiversity and Water Resources will conduct other specific studies that will be anchored to the monitoring and evaluation of the framework project and which are required especially for environmental themes: (i) the environmental baseline, (ii) the mid-term evaluation to track progress towards the results and expected impact on the beneficiary population as a result of execution; (iii) the effects of the project and the project completion studies; and (iv) the global environmental benefits.

C. DETAILED MONITORING AND EVALUATION BUDGET AND OPERATIONS

C.1. Project budget

314. The total budget for the monitoring and evaluation activities will amount to US\$ 400,000. The GOE will contribute US\$ 55,000 (13.75 % of overall cost), IFAD will contribute US\$ 210,000 (52.5 %), and the GEF will contribute US\$135,000 (33,75 %), as shown in the table below:

Table 30
Detailed budget for the monitoring and evaluation system (US\$)

Type of M&E Activity	IFAD (US\$)	GEF (US\$)	GOE (US\$)	Total (US\$)
1. Baseline Study	50 000	50 000		100 000
2. Community promoters for M&E (5)		30 000	5 000	35 000
3. M&E system, environmental SIG and implementation workshops		55 000	25 000	80 000
4. Supervision	100 000	0		100 000
5. Audit	20 000	0		20 000
6. Mid Term Review	20 000	0	10 000	30 000
7. Completion Report	20 000	0	15 000	35 000
Total M&E cost	210 000	135 000	55 000	400 000
% to be financed	52.5%	33.75%	13.75%	100.00%

C.2. Organizational mapping of the monitoring and evaluation system

315. The planned institutional arrangement includes the following:

1. The monitoring and evaluation system will be established in the Central Project Office.
2. The person with main responsibility for the M&E system will be the Monitoring and Evaluation Specialist.
3. The Monitoring and Evaluation system will have the following characteristics: (a) it will operate in function of the project's logical framework; (b) it will be compatible with the monitoring and evaluation system of the STPE; (c) the relevant indicators in the Well-being Plan²² (see text box) will form part of the monitoring and evaluation system; (d) it will produce monthly reports that will be made public on the STPE's web site; these reports will be focused and not more than two pages long; and (e) the RIMS indicators will be included; (f) it will be georeferenced.
4. The community promoters will be responsible for compiling relevant information using the fiches indicated by the monitoring and evaluation specialist.

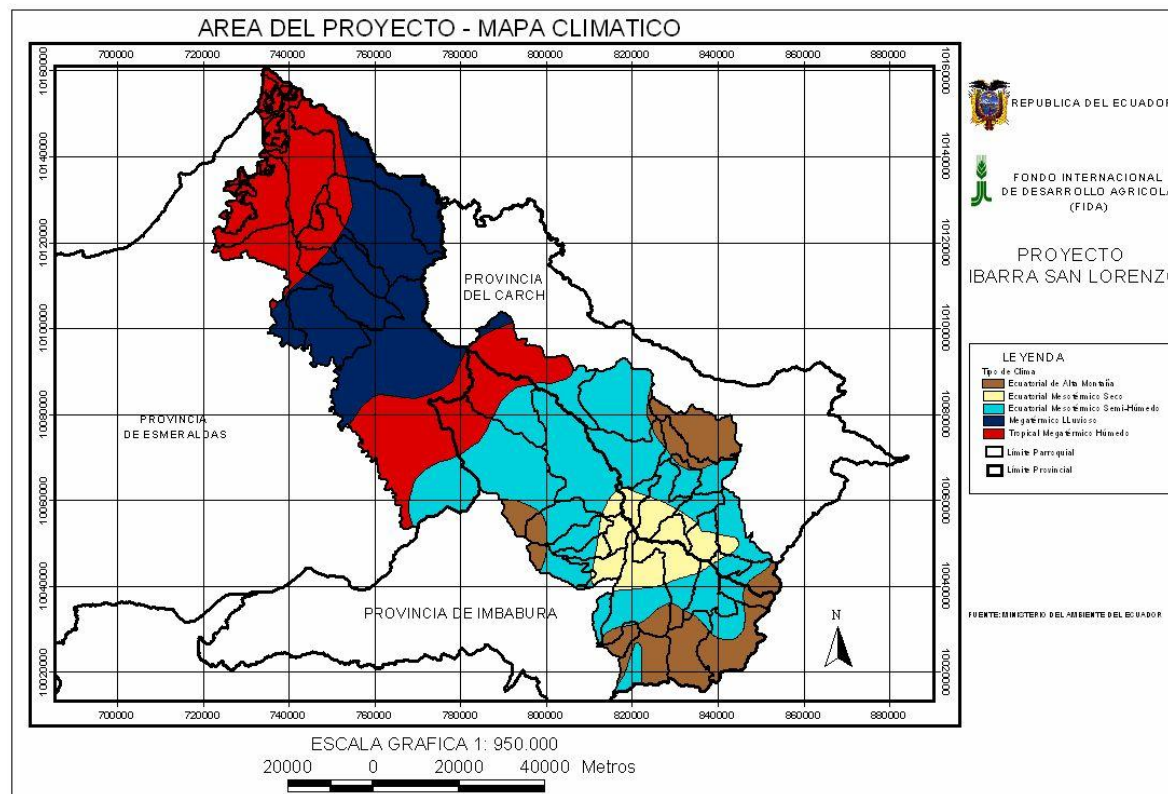
²² Office of the President of Ecuador, 2009

ANNEXES

Annex 1	Maps
Annex 2	Logical framework
Annex 3	Design and financial structure of the project
Annex 4	Incremental reasoning for GEF involvement
Annex 5	Definition and measurement of the expected Global Environmental Benefits
Annex 6	Objectives of the monitoring and evaluation system
Annex 7	Organization and budget of the project monitoring and evaluation system
Annex 8	Terms of reference for project staff
Annex 9	List of persons interviewed
Annex 10	Payment for environmental services
Annex 11	The Socio Bosque Programme [Forest Partners Programme]
Annex 12	Main objectives of restoration and interventions in the management of forests and degraded land
Annex 13	Information on key components of the landscape mosaic for planning forest landscape restoration strategies and activities
Annex 14	Contribution of key landscape areas to an initiative for restoration of the forest landscape
Annex 15	List of projects in the UNDP/GEF small donations programme
Annex 16	Auditing for sustainable forest management
Annex 17	Size of protected areas in Ecuador

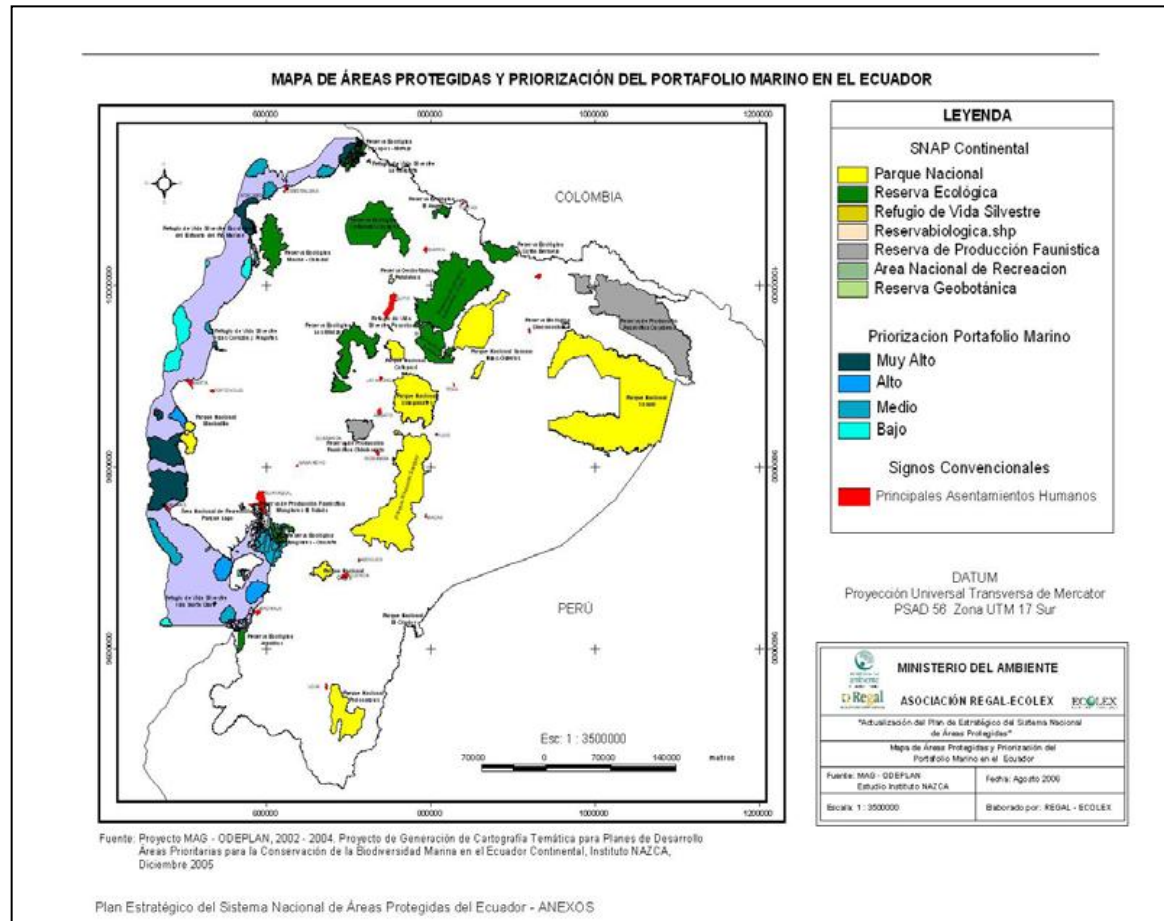
ANNEX 1
MAPS

Map 2
Climate in the project area

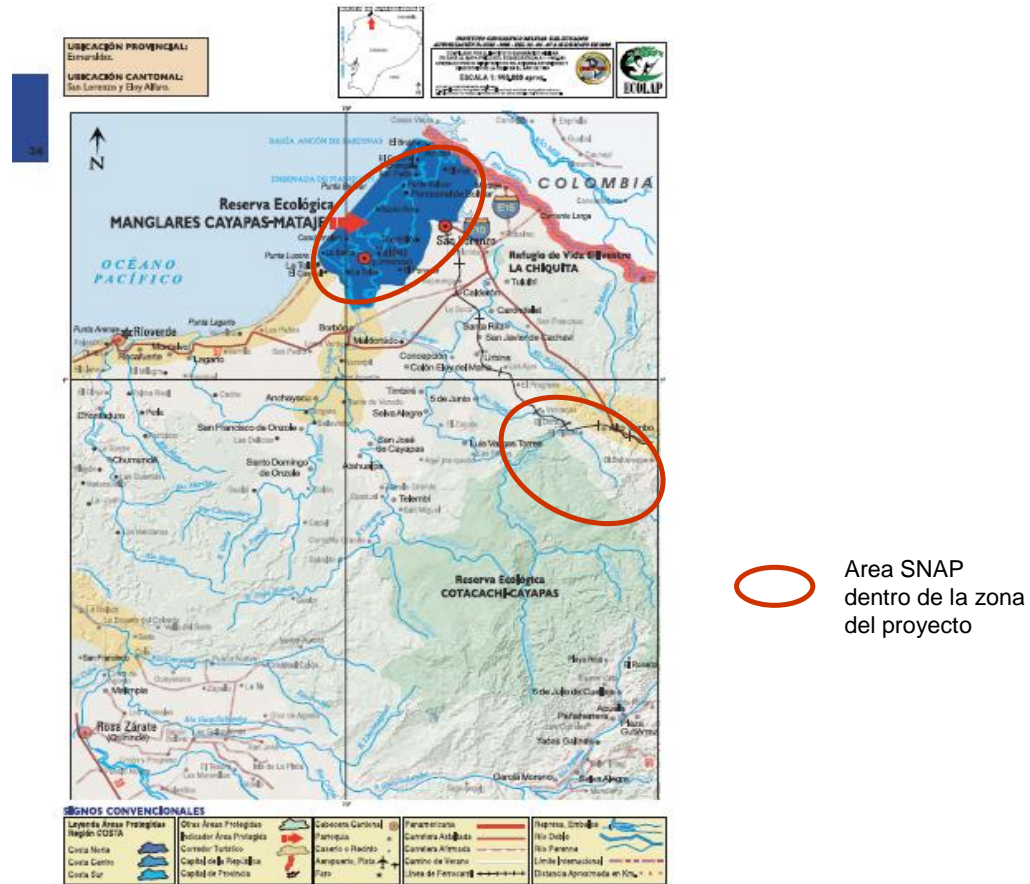


Key (right-hand side):
 High mountain equatorial
 Dry mesothermal equatorial
 Semi-humid mesothermal
 Rainy megathermal
 Humid tropical megathermal
 Parish boundary
 Provincial boundary

Map 3
Map of Ecuador's protected areas



Map 4
Maps of the REMACAM and RECC



ANNEX 2
LOGICAL FRAMEWORK

ANNEX 2 LOGICAL FRAMEWORK

SUSTAINABLE MANAGEMENT OF BIODIVERSITY AND WATER RESOURCES IN THE IBARRA-SAN LORENZO CORRIDOR			
Goal: To promote biodiversity conservation as well as sustainable land and forest management in the Ibarra-San Lorenzo corridor so as to preserve and improve the provision of environmental services in the area, reduce poverty and foster social inclusion to the benefit of indigenous people and local communities.			
Objective: To locally demonstrate the relevance of an array of SLM and SFM approaches and practices to achieve the preservation of biodiversity and the maintain the productivity of existing ecosystems, and at the same time incentivise the up-scaling of such practises			
Results	Results indicators	Means of verification	Assumptions and risks
Component 1. Capacity development for the locally-driven sustainable management of natural resources			
<p>Outcome 1.1: NRM practices aiming at biodiversity conservation are adopted and implemented by local governments and socio-productive organizations</p> <p>Activities are :</p> <p>A 111 Training for community organizations local governments and sector committees, in topics such as : (i) environmental rights and obligations, (ii) formulation of environment management plans, (iii) conflict resolution, (iv) joint management of critical areas etc</p>	<p>Two thirds of the parish councils and half of the registered producers associations are actively engaged in sustainable management practices, and enforcement of environmental rights and obligations</p> <p>Regulations governing fishing bans and the collection of crustaceans and molluscs are being better enforced</p> <p>Regulations governing timber extraction and the exploitation of forests are being better enforced</p>	<p>Reports by technical experts</p> <p>Documented practices</p> <p>Regulations, registers of fines, inventories, etc. compared before/during project</p> <p>Documentation on control procedures and records</p>	<p>Risk: Conflicting interests prevent or hamper the application of good practices.</p>
<p>Outcome 1.2: The Monitoring and Evaluation systems and procedures implemented by the regional MAE dependency are significantly strengthened</p> <p>A 121 Training of the staff of deconcentrated MAE agencies (regional/provincial levels), particularly in : (i) forest inventory, (ii) monitoring of the Socio Bosque program</p> <p>A 122 Strengthening of monitoring in two SNAP areas : REMACAM and RECC (including a study on pollution and its impact on biodiversity)</p>	<p>At least two major ministerial directives on biodiversity conservation are being significantly enforced</p> <p>Number of completed forest inventories (expected coverage : 20,000 ha)</p> <p>Quality and frequency of SOCIO BOSQUE monitoring reports improved and follow-up on findings .</p> <p>Quality and frequency of monitoring reports emanating from REMACAM and RECC improved.</p> <p>At least one study completed (e.g. REMACAM :</p>	<p>Inventory documents</p> <p>Reports</p> <p>Study products</p>	<p>Risk: Weak culture among technicians and producers in producing good quality information.</p>

	impact of water pollution on the coastal ecosystems and their productivity)		
<p>Outcome 1.3: The public, and especially the youth , are better educated in conservation of biodiversity and human rights.</p> <p>A 131 Environmental education of the public and at schools, using a variety of medias</p>	At least 2,000 students trained in environmental management (40% women).	<p>Reports</p> <p>List of participants and/or visual records</p>	Risk: Scant acceptance and involvement by teachers and authorities.
<p>Outcome 1.4: The GEF project is monitored and evaluated effectively and efficiently.</p>	The M&E system provides information to management in an appropriate fashion	Monitoring and evaluation reports	
Component 2. Catalytic investments for the conservation, restoration and sustainable management of natural resources: land, forests, water.			
<p>Outcome 2.1: Reduction in land degradation through the use of sustainable management techniques.</p> <p>A 211 Validation of comprehensive sustainable land management practices in micro-watersheds /catchments in the dry zone</p> <p>A 212 Promotion for the upscaling of validated SLM techniques</p>	<p>At least 2,500 ha pertaining to 2 catchments are managed using validated SLM techniques .</p> <p>Number of hectares where recommendations on sustainable techniques are being applied on a wider scale beyond the demonstrative catchments (indicator: annual variation of area where the major SLM techniques are being applied . Target = + 500 has per year from year 3 of project onwards)</p>	<p>Periodic reports</p> <p>Visual records</p> <p>Field visit reports</p>	Assumption: The selection process of the areas for participatory demonstration is transparent.
<p>Outcome 2.2: Reduction in deforestation, and area under sustainable forest management techniques increased (e.g. the forests belonging to the Awás and Cachis indigenous groups, the mangroves).</p> <p>A 221 Maintenance and restoration of (primary and secondary) forest landscapes</p> <p>A 222 Support for implementation of the REMACAM management plan</p>	<p>Forest degradation in the project area is significantly reduced thanks to the implementation of SFM practices. Deforestation is stopped in forest areas intervened by the project (120,000 has)</p> <p>Plans to restore the forest landscape exist for at least 10,000 ha of primary forest and 10,000 ha of secondary forest .</p> <p>The management plan for REMACAM is being fully financed and implemented.</p>	<p>Reports</p> <p>Visual records</p> <p>Field studies</p> <p>Thematic studies</p>	

<p>Outcome 2.3 : Improved waste management contributes to improved NRM</p> <p>A 231 Validation of innovations in waste management (plastic recycling for construction materials, wooden pellets for charcoal substitution)</p>	<p>REMACAM maintains its level of biodiversity and primary productivity (see appropriate biodiversity indicators)</p> <p>At least two techniques for sounder waste management were experimented and validated with positive impacts on biodiversity</p>		
Component 3: Incentives for community-led SFM			
<p>Outcome 3.1: The Socio Bosque Programme attains the objectives and goals established in the project zone according to SB priorities.</p> <p>A 311 (Legal, administrative, organisational) Assistance to communities in getting access to Socio Bosque</p>	<p>At least 40 communities are involved in the Socio Bosque Programme. At least 100,000 ha are thus protected under the PES contractual obligations</p> <p>Amounts transferred by Socio Bosque to beneficiary communities that are transformed into collective assets</p>	<p>Signed Agreements</p> <p>Reports on physical monitoring of Socio Bosque</p> <p>Socio Bosque accounting</p>	<p>Assumption: The Socio Bosque Programme continues to be actively supported and financed by the GOE.</p> <p>Assumption: redtape obstacles to the production of the requisite documents for the signature of agreements with SB can be overcome.</p>
<p>Outcome 3.2: Income-generating investments stimulate SFM by Socio Bosque Programme beneficiaries in at least 40 communities(downstream support to SB)</p> <p>A 321 Participatory identification of suitable communal investments</p> <p>A 322 Execution and participatory monitoring of identified investments</p>	<p>Nature, quantity and quality of complementary investments that comfort SFM by the communities involved in the Socio Bosque Programme (Target: average 10,000 USD / community).</p>	<p>Project documents</p> <p>Reports</p>	
Component 4. Project Management			
<p>Outcome 4.1 The GEF project is implemented effectively and efficiently.</p>	<p>100% of financing is executed.</p> <p>Management uses M&E results for project steering.</p>	<p>Technical and financial reports</p> <p>Monitoring and evaluation reports</p>	<p>Assumption: Political support for the Technical Secretariat of Plan Ecuador is sustained..</p>

ANNEX 3
DESIGN AND FINANCIAL STRUCTURE OF THE PROJECT

ANNEX 3 DESIGN AND FINANCIAL STRUCTURE OF THE PROJECT

3.1 FINANCING

The proposed project consists of four components. The corresponding activities have been taken into account for each component. The costs of project activities were calculated in current costs. Foreign exchange has been included in the investments in equipment and vehicles, based on the relative weight of the component.

Total costs of the combined project and associated cofinancing. The total cost of the combined project (Ibarra-San Lorenzo Development Project and GEF associated project) will be **US\$ 18.75 million**.

GEF financing and cofinancing. The overall Ibarra-San Lorenzo Development Project will total **US\$ 18.75 million**, with contributions from IFAD (US\$ 12.825 million, which represents 68% of the total project cost); the GOE (US\$ 2.24 million or 12% of total cost); the beneficiaries (US\$ 783,000, 4% of total cost), and local governments (US\$ 198,000 or 1% of the total). The GEF will contribute with US\$2.7 million (representing 14% of the total cost), through the Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor Project.

**Table 3.1
Financing of the overall Ibarra-San Lorenzo Development Project***

	<u>Foreign</u>	<u>Local</u>	<u>Total</u>	<u>Percent</u>
FIDA	150	12 675	12 825	68.4
GEF	-	2 700	2 700	14.4
Beneficiarios	-	783	783	4.2
Gobiernos Locales	-	198	198	1.1
Gobierno del Ecuador	-	2 244	2 244	12.0
Total	<u>150</u>	<u>18 600</u>	<u>18 750</u>	<u>100.0</u>

Costs by component of the GEF project. The total costs of the GEF project (Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor) have been estimated as US\$2.7 million for a five-year period. The project proposed to the GEF will be implemented during a five-year period, beginning in year two of the associated Ibarra-San Lorenzo Development Project. The Local Environmental Management Capacity Development component accounts for US\$494,000 or 18.3% of the total GEF contribution. The Investment (for SLM/SFM) component represents US\$1.13 million or 41.8% of the GEF grant. The Incentives for Productive Conservation component will cost US\$872,000 (32.3%). Last, the Project Management component will cost US\$204,000 or 7.6% of the total GEF grant, a figure that is justified by the peculiar difficulties (access, diverse ethnicity) presented by the area and the associated costs of monitoring and supervision. (see annexes 3 and 7 of the PDR).

Table 3.2
Costs per component
Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo corridor (in US thousands)

	GEF	
	Amount	%
Local Environmental Management Capacity	494	18.3%
Innovative Initiatives for Natural Resource Conservation, Restoration, and Sustainable Management	1130	41.8%
Incentives for Productive Conservation	872	32.3%
Project Management	204	7.6%
Total Project	2700	100.0%

Costs by category of the GEF project. Two expenditure categories have been included as follows: Institutional Strengthening and Sustainable Management of Biodiversity and Water Resources with an amount of US\$ 698,000 (26%); and Environmental Services Subprojects, US\$2 million (74% of total grant).

Table 3.3
Costs by spending category
Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor

	GEF	
	Amount	%
Institutional Strengthening and Sustainable Management of Biodiversity and Water Resources	698	25.9
Environmental Services Subprojects	2,002	74.1
Total Project	2,700	100.0

Table 3.4. Costs by component
Project for Sustainable Management of Biodiversity and Water Resources in the
Ibarra-San Lorenzo Corridor and associated IFAD project

SUSTAINABLE MANAGEMENT OF BIODIVERSITY AND WATER RESOURCES IN THE IBARRA-SAN LORENZO CORRIDOR						<i>Co-financing from the FRAMEWORK PROGRAMME</i>		
DEVELOPMENT OBJECTIVE	The goal of the Project for Sustainable Management of Biodiversity and Water Resources is to promote integrated management of biophysical resources in harmony with the social and productive dynamics of the inhabitants of the mountains, the foothills, and the mangrove reserve, to guarantee the survival of biodiversity and the availability of water resources, with stress on the development of alternatives to help reduce human pressure on biodiversity through the restoration and valuation of fragile ecosystems and landscapes, with the cooperative participation of institutional players and local communities.					IFAD	Other (governments, beneficiaries)	
IMMEDIATE OBJECTIVE	To help improve natural resource management practices to guarantee the conservation of biodiversity and the productivity of ecosystems, with sustainability, which will be adopted in the region on account of their pertinence,							
COMPONENT 1: <i>Local environmental management capacity</i>	<i>US\$494,000</i> <i>Broken down as:</i>	COMPONENT 2: <i>Innovative initiatives for the conservation, restoration, and sustainable management of natural resources</i>	<i>US\$1,130,000</i> <i>Broke down as:</i>	COMPONENT 3: <i>Incentives for productive conservation of natural resources</i>	<i>US\$872,000</i> <i>Broken down as:</i>	12,825,000	3,225,000	
1.1 Training for community organizations, local governments, and sector committees	63,000	2.1 Comprehensive sustainable management practices for land in micro-watersheds or drainage basins in the dry zone	780,000	3.1 Assistance to put the Socio Bosque Programme into practice.	440,000			
1.2 Training for deconcentrated agencies of the MAE	53,000	2.2 Maintenance and restoration of forest landscapes	230,000	3.2 Complementary environmental investments to support implementation of Socio Bosque.	432,000			
1.3 Strengthening of monitoring in the SNAP areas	200,000	2.3 Support for implementation of the REMACAM management plan	30,000					
1.4 Environmental education	44,000	2.4 Validation of innovations in social waste management	90,000					
1.5. Monitoring and Evaluation	135,000							
TOTAL operating components	494,000		1,130,000		872,000	16,050,000		
Component 4: Management	Coordination and financial management 138,000 Travel and equipment 66,000 Total project management 204,000							
TOTAL GEF BUDGET						2,700,000		
TOTAL GEF and IFAD FRAMEWORK PROGRAMME						18,750,000		

3.2 ACCOUNT MANAGEMENT

Accounts. A special bank account will be open to transfer the funds from the GEF. This account will be different from the one with the IFAD funds. This account will be at the Banco de Ecuador and will allow IFAD and the GEF to monitor its management. It has been anticipated that the STPE will be the manager of the account and that STPE will open another account at the national banking system to finance the recurrent costs of the donation.

Categories. There will be four expenditure categories that are: (a) Equipment and Vehicles; (b) Environmental Investments; (c) Research and Training; (d) Incremental Technical Staff (GEF). The expenses of the donation are tax-exempt.

Accounting management. The project will be implemented under the following arrangements:

- a. The GEF funds will be managed separately from the IFAD loan proceeds.
- b. The Project Coordination Unit (PCU) will prepare the AWP for registration at the STPE. The AWP will spell out the requirements of the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor.
- c. The AWP will be subject to prior review by IFAD. The eligibility of the expenditures requested and the procurement methods will be determined at that point. Procurement will be aligned to Ecuadorian regulations for ease of implementation.
- d. Once the AWP clearance has been obtained from IFAD, it will be registered at the STPE.
- e. Once the AWP has been included in the Ecuadorian national accounts, disbursements will be granted through the single treasury account.
- f. The single treasury account will be monitored through the SIGEF, which is the agency that gives permission for electronic disbursements.
- g. Expenditures under the proposed project will be monitored through replenishment requests to the GEF, which may not be less than US\$400,000 nor more than the authorised amount in the Financial Agreement. The replenishment requests will be addressed to IFAD.
- h. Procurements will be made through Ecuador's procurement system (SICOF) and the arrangements necessary will be made in a timely manner.
- i. The requests will be documented as required in regular accounting standards. Budget allocations will be made in accordance with the categories established for the donation. The monitoring and steering unit which forms part of the PCU will prepare reports every semester. Monitoring will be the responsibility of the Director of the Ibarra-San Lorenzo Development Project.

3.3 PROCUREMENT

Goods. The goods to be procured with the donation include vehicles and boats, tools, equipment for forest guards, and office equipment. National price comparisons will be used for these contracts. The remaining procurements will be made through direct contracting under the public procurement system.

Environmental investments. This category includes the following eligible costs: plantlets, organic fertilizer, land management plans, forest management plans, equipment to replace charcoal, and solid waste management. These procurements will be made through national price comparison and direct contracting. Co-financing in land purchases, leasing, and payments will also be eligible as payment for environmental services in the project area. Such procurements will be transferred to the local authorities in ownership (municipalities and provincial governments). Transfer payments to Socio

Bosque are also eligible in this category, which will be made directly, without bidding, against that institution's AWP.

Studies and training. Consulting services, training workshops, and technical and accounting audits are eligible in this category. They will be obtained through direct contracting under the public procurement system.

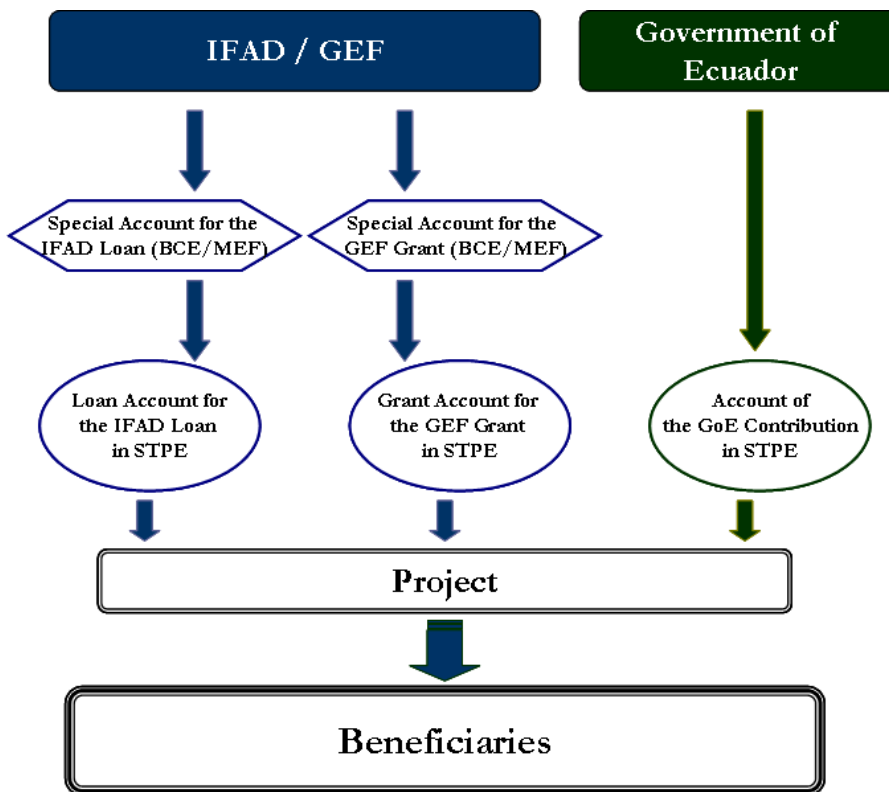
Incremental technical personnel. The cost of contracting national technical personnel, community promoters, and per diems for field missions will be eligible in this category. Direct contracting will be used under the public procurement system.

3.4 AUDITING

The GEF donation will be audited separately from the IFAD loan. Audits will be performed annually to verify the handling of accounts, their allocation, and the eligibility of expenditures. These incremental audits have the objective of overseeing proper application of the clauses in the donation agreement.

3.5 FLOW OF FUNDS

Figure 3.1
Flow of funds



ANNEX 4
INCREMENTAL REASONING FOR GEF INVOLVEMENT

ANNEX 4 INCREMENTAL REASONING FOR GEF INVOLVEMENT

GEF project component	Local Benefits	Global Environment Benefits	Incremental inputs
Component 1: Capacity development for local environmental management			
<p>Base line :</p> <ul style="list-style-type: none"> - Marked lack of coordination between actors as regards environmental activities and investments.; - The incentives structure for sustainable environmental management is insufficiently targeting the poor who are themselves the cause of significant environmental degradation as a result of a lack of economic alternatives - SLM and SFM are poorly understood concepts among government agents and elected decision-makers alike . - Environmental laws and regulations are poorly enforced <p>With GEF intervention:</p> <ul style="list-style-type: none"> - A better integrated approach towards fostering SLM/SFM will be obtained by linking environmental investments with those made for poverty alleviation - Better coordination between initiatives, in particular between donors-supported programs - Improved efficacy of the local dependencies of the Ministry of Environment as well as of the local governments in dealing with environmental challenges and regulations enforcement 	<p>Base Line :</p> <ul style="list-style-type: none"> - Small projects aiming at SLM/SFM have been carried out in the area and have generated tangible benefits ; however a coherent approach has been missing to holistically address the degradation of the resource base and involve the concerned people in the decision-making process <p>With GEF intervention:</p> <ul style="list-style-type: none"> - Thanks to capacity development at various levels , significant improvements are expected regarding the planning and implementation of NRM-focused investments as well as the enforcement of existing environmental norms and regulations in the Project area 	<p>Base Line :</p> <ul style="list-style-type: none"> - With the notable exception of the recently launched SOCIO BOSQUE program , there are no specific instruments in place to promote SFM - Neither policies nor specific instruments for SLM promotion are being implemented - The limited scale of biodiversity conservation initiatives taken so far has prevented any significant impact at global level to materialize. <p>With GEF intervention:</p> <ul style="list-style-type: none"> - In view of the strategic importance at global level of the biogeographical Choco region , the replication and up-scaling prospect of the GEF Project activities is high ; with a potentially significant impact in terms of global benefits, particularly regarding biodiversity preservation and carbon capture 	<p>(GEF contribution: 359.000 USD)</p> <p>Consist of :</p> <ul style="list-style-type: none"> (i) institutional strengthening , and thematic training at various levels of the administrative organs involved in environmental decision-making (including local governments, and sectoral entities) so as to enable them to enforce the existing environmental regulations , formulate sound NRM plans (ii) Synergy-building and harmonization between the contributions from various sources aiming at a sound environmental management of land, water and soils (iii) Promoting a participatory approach in decision –making related to the implementation of SLM/SFM practices and the preservation of biodiversity (iv) Empowering communities and farmers associations to adopt and replicate SFM/SLM practices ;

GEF project component	Local Benefits	Global Environment Benefits	Incremental inputs
Component 2: Catalytic investments for the conservation, restoration and sustainable management of natural resources (land, forests, water)			
<p>Base line :</p> <ul style="list-style-type: none"> Very few investments are made to promote SLM and SFM ; their catalytic effects are sub-optimal <p>With GEF intervention:</p> <ul style="list-style-type: none"> Demonstrative investments in SLM and SFM are implemented and lead to upscaling by various categories of stakeholders 	<p>Base line :</p> <ul style="list-style-type: none"> There has been significant recent efforts (PRODERENA) to improve the governance of natural resources but until today very little field investment has taken place <p>With GEF intervention:</p> <ul style="list-style-type: none"> Sound SLM and SFM practices will be validated in the field and demonstrated on a scale that will induce farmers and producers association to adopt them , gain confidence in the planning and implementation of these practices, and spread their use further 	<p>Base line :</p> <ul style="list-style-type: none"> The Choco region will continue undergoing accelerated degradation with a dramatic loss of biodiversity of global interest since current GoE action is clearly insufficient to halt the ongoing processes or even reduce the pressures on the ecosystems <p>With GEF intervention:</p> <ul style="list-style-type: none"> The feasibility and profitability of obtaining biodiversity conservation through the promotion of SLM and SFM practices will be demonstrated in a way that will motivate the local population to adopt these practices, and encourage the decision-makers and donors to support their adoption on a larger scale 	<p>(GEF contribution : 1.130.000 USD)</p> <p>(i) Demonstration of the benefits of a holistic SLM approach with adapted practices in selected representative environments (e.g. degraded catchments in the Chota valley)</p> <p>(ii) Planning and implementation of SFM in both primary and secondary forest areas</p> <p>(iii) Promotion activities in relation with the dissemination of SLM and SFM practices on a significant scale</p>
Component 3: Incentives for the Sustainable Management of communal forests			
<p>Base line :</p> <ul style="list-style-type: none"> GoE (with some donors' support) has just engaged into an ambitious, nation-wide, long-term PES scheme for reducing the degradation of private and communal forests ("SOCIO BOSQUE") and the associated loss of biodiversity. <p>With GEF intervention:</p> <ul style="list-style-type: none"> In the project area, the monitoring of the PES implementation will be improved; the PES effectiveness for biodiversity preservation will be enhanced and the PES targeting improved as well, giving better results in poverty reduction 	<p>Base line :</p> <ul style="list-style-type: none"> The SOCIO BOSQUE scheme , although it includes communal forests in its domain of intervention and is meant to give priority to poor and threatened areas is actually insufficiently equipped to reach these targets and address alone the considerable needs for SFM promotion in the Project area . <p>With GEF intervention:</p> <ul style="list-style-type: none"> The outreach of SOCIO BOSQUE in the Project area will be much better spread out , both in spatial terms and in terms of the categories of intended beneficiaries , giving their due share of attention to communal forests 	<p>Base line :</p> <ul style="list-style-type: none"> Deforestation is a major cause of CO2 emissions , biodiversity losses and land degradation in a zone that is one of the hotspots of global significance Paramos and forests provide environmental services of lesser and lesser value as a consequence of the ever-increasing pressure on their resources <p>With GEF intervention:</p> <ul style="list-style-type: none"> Deforestation is decreased and Carbon emission reduction is significant Carbon sequestration is kept at least at its current level, hopefully increased More poor people deprived of individual property titles will get significant benefits from the PES scheme 	<p>(GEF contribution: 872.000 USD)</p> <p>(i) Assistance to communities in getting access to the SOCIO BOSQUE scheme and its associated benefits ;</p> <p>(ii) additional investments to complement the ones financed through Socio Bosque so as to enable the beneficiary communities to thoroughly implement SFM measures</p>

ANNEX 5
DEFINITION AND MEASUREMENT OF THE EXPECTED GLOBAL
ENVIRONMENTAL BENEFITS

ANNEX 5

DEFINITION AND MEASUREMENT OF THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS

ASSESSMENT OF GLOBAL ENVIRONMENTAL BENEFITS (GEBs)

The global environmental benefits are mainly derived from the restoration and/or improvement of ecosystems integrity (health, stability and connectivity).

The project will act on three strategic axes: (i) biodiversity preservation; (ii) combating land degradation through demonstrating SLM practices for improved watershed management, and (iii) fostering SFM mainly through support to an existing national PES system (Socio Bosque Program). The results obtained on those axes will lead to global environmental benefits that will be tracked by an appropriate and combined array of indicators.

The proposed base-line environmental survey, to be undertaken within the first year of the project, is expected to overcome the current lack of reliable quantitative data on the baseline situation and will provide a clear set of verifiable indicators that can be used to measure the expected changes due to project supported activities. Those indicators will be improved through interaction with the parties involved in monitoring the project during its implementation.

Choice of indicators

1. Biodiversity

Biodiversity includes diversity within each species, diversity between species, and the diversity of ecosystems. The sustainability of renewable natural resources management is apparent in the production of a continuous flow of desirable products and services, without a reduction in its productive potential (measured for example against primary productivity).

Possibly, the best indirect indicator of the status of biodiversity in the region and of the threats to it, is the rate of deforestation and/or degradation of forests. This holds true for lands/forests but also to a large extent for the coastal areas (status of mangrove ecosystems) where, in addition, the quality of incoming freshwater has a critical influence on biodiversity levels and trends.

2. Land Degradation

Possible indicators to monitor the results of the promotion of SLM practices are the vegetative cover and the organic matter in soils.

3. Sustainable Forest Management (SFM).

This concept stems from a recognition and appreciation of the wide range of functions fulfilled by forests (socio-cultural, environmental and economic) and their contribution to society and human well-being. Those aspects go far beyond the direct production of wood and include the production of a wide range of goods (e.g. non-wood forest products, fruit, resin, game, etc.) and the production of services (e.g. biodiversity and habitat for a range of species; regulation and conservation of water cycles and quality; carbon fixation and climate change mitigation; tourism; scenic beauty and landscape amenities; soil conservation; human habitat, and cultural and spiritual values). As to the project intervention in SFM, possible initial indicators are the extent of natural regeneration of forests and hectares under SFM practices.

Indirect global environmental benefits

Through its activities mainly related to forest sustainable management, the project will also contribute to mitigate climate change by increasing the carbon capture, additional to the other benefits like biodiversity preservation and avoidance of GHG emissions.

Table 5.1. Expected Global Environmental Benefits from the project

Global Environmental Benefit	Baseline (*)	Expected at the end of the project	Key indicators and targets	Methods of Measurement	Sources of verification
Biodiversity					
<p>1. Reduced loss of biodiversity in the Biogeographical Chocó hotspot through the preservation of high-potential coastal and inland ecosystems pertaining to National Protected Areas.</p>	<ul style="list-style-type: none"> - Biodiversity within REMACAM protected area is under continued pressure from harvesting - Forest in RECC reserve reduced as a result of encroachment by communities in adjacent areas 	<ul style="list-style-type: none"> - Reduction in level of encroachment and unsustainable exploitation of natural resources by communities in the two protected areas <ul style="list-style-type: none"> i. 20% increase in vegetation cover ii. 50% reduction in fire occurrences - Halt to over-exploitation of existing fish and molluscs stocks in REMACAM - Forest degradation in the project area is significantly reduced thanks to the implementation of SFM practices <ul style="list-style-type: none"> i. Deforestation is stopped in forest areas intervened by the project (120,000 has) ii. 20,000 hectares of 	<ul style="list-style-type: none"> - Level and rate of degradation of existing natural resource base in the REMACAM and RECC reserves - Level of marine and forest harvesting - Deforestation rate and its evolution in the project area. - Number of hectares of forests that are managed effectively and sustainably, following locally developed management plans 	<ul style="list-style-type: none"> - Special assessment of natural resource base (forest, soil, water quality) in RECC and REMACAM - Periodic inventories of coastal resources stocks (fish, shrimps, molluscs, mangrove status) - Special study on current and potential impact of water pollution on biodiversity in REMACAM - Forest inventory in RECC in PY 1 and 5 - Monitoring of harvesting levels (marine 	<ul style="list-style-type: none"> - Assessment reports for RECC buffer zone - Stock inventories n REMACAM - Study report - REMACAM and RECC periodic monitoring reports - Management Effectiveness Tracking Tools (METT)²³

²³ The Management Efficiency Tracking Tool is a tool specifically designed by WWF and the World Bank to monitor and report on the management of protected areas. METT is derived from a framework conceived by the World Commission on Protected Areas

		forests, in different communities, have sustainable management plans that are enforced		and forest products) - Analysis of remote sensing data to assess changes in forest cover (e.g. extent, status) over the project area and timespan as compared to historical data - Management Effectiveness Evaluation	
2. Improved financial sustainability and management of two National Protected Areas.	<ul style="list-style-type: none"> - REMACAM management plan halt after WB project that is currently covering its costs ends - Local management committees non operational at present (no funding available for participatory management committees) 	<ul style="list-style-type: none"> - Regional and local governments' budgets include the costs required meet management objectives of the protected areas - Two local management committees fully operational, including bylaws, operative structure and work plan 	<ul style="list-style-type: none"> - Availability and sources of funding for sustainable management of the two protected areas - Functionality of local management committees LMC 	<ul style="list-style-type: none"> - Evolution of relevant line items in regional government and SNAP budgets - Management Effectiveness Evaluation - Analysis of characteristics and implementation of LMC work plan - Analysis of community participation in management effectiveness evaluation 	<ul style="list-style-type: none"> - Dedicated Budgets from Regional government and from SNAP - METT - LMC by-laws and work plan and meeting minutes - Workshops and training reports

Biodiversity and Sustainable Forest Management					
<p>3. Effective markets for biodiversity goods and services fostered.</p>	<ul style="list-style-type: none"> - Poor communities lack the required administrative and managerial know-how to comply with the PES requirements such as the established by SOCIO BOSQUE - SOCIO BOSQUE program remains at great risk of not being able to reach its targets due to insufficient capacity at local level in the Northern Corridor - Deforestation and degradation rates continue increasing and reach alarming rates 	<ul style="list-style-type: none"> - At least 40 communities fulfil the legal and administrative requirements of SOCIO BOSQUE PES scheme and benefit from this PES initiative - Forest degradation in the project area is significantly reduced thanks to the implementation of SFM practices <ul style="list-style-type: none"> i. At least 40 communities have started implementing SFM practices in their primary and secondary forests (total: 100,000 has) 	<ul style="list-style-type: none"> - Number of communities that fulfil legal and administrative requirements to receive the PES - Amount of payments for forest conservation transferred to communities - Number of hectares of forests that are managed effectively and sustainably, following SOCIO BOSQUE management guidelines 	<ul style="list-style-type: none"> - Monitoring system of SOCIO BOSQUE in the project area - Analysis of remote sensing data to assess changes in forest cover (e.g. extent, status) over the project area and timespan as compared to historical data 	<ul style="list-style-type: none"> - Records of PES scheme contracts and SOCIO BOSQUE monitoring - SIG and satellite images
Land Degradation and Sustainable Forest Management					
<p>4. Land degradation halted in representative vulnerable areas.</p>	<ul style="list-style-type: none"> - Very few SLM practices are undertaken in the area and no systematic dissemination of validated practices is taking place 	<ul style="list-style-type: none"> - At least 2,500 hectares of vulnerable catchments land are under SLM practices <ul style="list-style-type: none"> i. natural vegetative recovery (at least some 1000 has of temporary and permanent closures) 	<ul style="list-style-type: none"> - Time series of crop and pasture land under taking SLM (has) - Spatial and temporal variation in vegetative cover of lands under SLM 	<ul style="list-style-type: none"> - Baseline assessment of vegetative cover and soil organic matter content in selected catchments - Annual record of SLM practices being applied 	<ul style="list-style-type: none"> - Project environmental monitoring reports, SIG - Mid-term assessment and end-of project evaluation according to project M&E plan

		<ul style="list-style-type: none"> ii. enrichment planting of trees, shrubs, grasses and herbaceous plants (at least some additional 5 00 has of temporary and permanent closures) iii. Increased soil cover and improved organic matter levels within the minimum of 2,500 have of croplands and rangelands under SLM. 	<ul style="list-style-type: none"> - Variation in soil organic matter content, as a result of SLM practices being implemented 	<ul style="list-style-type: none"> - Monitoring of vegetative cover in areas under SLM - Soil analyses in PY3 and PY5 (where SLM practices have been applied) 	
<p>5. Strengthened enabling environment that places sustainable land management in the mainstream of development policy and practices at regional and local levels.</p>	<ul style="list-style-type: none"> - National policies to prevent environmental degradation lack the human resources capacities to make them effective 	<ul style="list-style-type: none"> - Regional teams of the MAE and groups of volunteer community promoters effectively plan, implement, and monitor forest and land management plans in agreement with national policies - SLM is integrated into, at least, 40 local plans and their related activities 	<ul style="list-style-type: none"> - Number of community plans that incorporate SLM components - Number of national environmental policies effectively implemented and enforced at local level - % increase in areas where SFM best practices are applied 	<ul style="list-style-type: none"> - Monitoring of local and regional plans and policies - Annual record of SLM practices being applied 	<ul style="list-style-type: none"> - Approved community plans - Governmental reports and policies - Mid-term assessment and end-of project evaluation according to project M&E plan
<p>The baseline (environmental survey) will be undertaken within the first year of the project, as is the standard practice of IFAD. This survey will overcome the current lack of reliable quantitative data on the baseline situation and will provide a clear set of verifiable indicators that can be used to measure the expected changes due to project supported activities.</p>					

ANNEX 6
OBJECTIVES OF THE MONITORING AND EVALUATION SYSTEM

ANNEX 6

OBJECTIVES AND PRINCIPLES OF THE MONITORING AND EVALUATION SYSTEM

6.1. OBJECTIVES OF PROJECT MONITORING AND EVALUATION SYSTEM

The objective is to provide general guidelines to facilitate the design of a monitoring and evaluation system to be established by the STPE for the proposed project. The system was designed following the impact monitoring and evaluation guidelines for results management, the framework for the results and impact management system (RIMS), and the recommendation of the Regional Monitoring and Evaluation Programme (PREVAL). The system will also keep the SENPLADES supervision and evaluation system into account.

The monitoring and evaluation system to be established by the STPE will be the main instrument for project management and will be included in the management information system (SIG), that the STPE will use to operate the project, with a view to attaining the project objectives. The SIG will be the main management instrument for decision making based on the approved AWP and budgets. Also, through PREVAL, IFAD will support the development and strengthening of a national indicators system for SENPLADES.

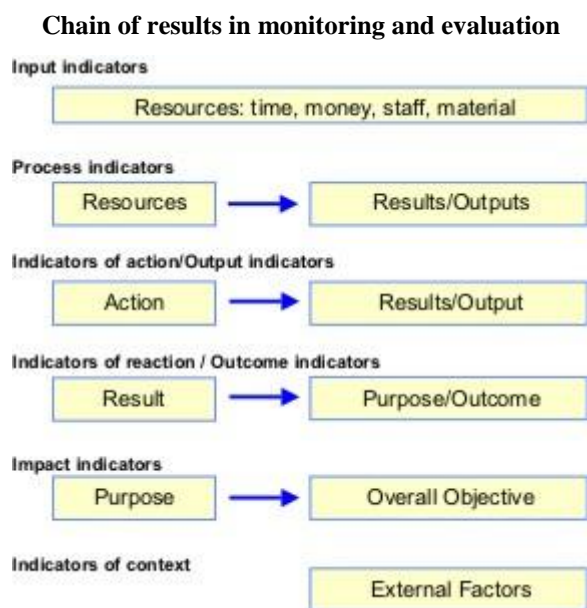
6.1.1 Basic monitoring and evaluation considerations

Basic monitoring and evaluation considerations. The proposal for the monitoring and evaluation system is based on RIMS and covers processes during execution as well as the monitoring of their impacts. It also offers a menu of tools for the project with links to the SENPLADES systems. Therefore it permits better channelling of progress in terms of compliance with the project objectives and its contribution to the National Well-being Plan.

Results-based management is an approach intended to achieve major changes in the way in which organizations operate, with an improvement in performance in terms of results. It provides the management framework and tools for strategic and operational planning, risk management, and supervision and evaluation. Its main objectives are to improve organizational learning and comply with accountability obligations through the presentation of reports

The context of the management of development processes and projects is examined through multiple levels, to which end the concept of a chain of results is applied, as shown in Figure 6.1 below.

Figure 6.1



The above model shows the causal relationship between inputs, activities, outputs, results, and impact in a given time.

The results of supervision will help to:

- Construct chains of results indicators based on the logical framework, separately for each component.
- Establish specific objectives for measuring performance and results indicators periodically.
- Compile reference information for describing the problem or situation prior to the intervention.
- Compile data periodically to evaluate whether the objectives are being complied with on the envisaged exit level.
- Periodically evaluate compliance with the objectives on different levels in function of the results obtained.
- Analyze and report on the results and determine information requirements.
- Centre the analysis of results in function of the perception of change held by the beneficiaries.
- Establish a system for the presentation of reports as part of the system for disseminating knowledge, based on quantitative and qualitative information on progress toward the results.
- Provide information on the success or failure of the cooperation strategy in achieving the desired results.

6.1.2. Differences between monitoring and evaluation

In the context of the project, monitoring is defined as a frequent, periodic process of information analysis, with continuous feedback during project execution, while evaluation is defined as a periodic activity but with the application of mechanisms to define and review the validity of the development hypotheses and to enable project management to carry out quality control.

Monitoring and evaluation are parts of an instrument centred on project management, with control procedures that use the same planning framework and indicators and therefore they should be viewed as two aspects that work toward the same purpose.

6.1.3. Features of the monitoring and evaluation approach

The proposed monitoring and evaluation system will have the following characteristics and approaches:

- It takes a participative approach through cross-cutting procedures and activities to guarantee the existence of ties among all the players involved, the project beneficiaries, and the Technical Secretariat of Plan Ecuador.
- It gives priority to a gender approach with a view to achieving equity between men and women, reducing existing difference between them with regard to access to the benefits, services, and opportunities of development interventions. To attain this objective, the system will compile and process information broken down by gender.
- It monitors specific results by ethnic group, which it differentiates and studies. The results indicators derive from the recognition and exercise of human and collective rights attuned to their vision of well-being.
- It stresses communications as part of an information system to ensure that all the information compiled and processed is widely disseminated on all levels, for the purposes of transparency and the creation of a system of knowledge about the lessons learned.
- Impact and effects are measured from the standpoint of results-based management and RIMS, which helps to measure progress towards the Millennium Development Goals (MDGs).
- It deepens learning processes by building up local monitoring and evaluation capacity, thereby contributing to a process of empowering the different parties interested in the use and management of monitoring and evaluation procedures, supporting the participative approach and social auditing.
- It creates mutual trust in the development of a culture of analysis, on the understanding that the philosophy behind the system has the objective of free criticism to improve monitoring operations and not for the purpose of sanctioning infractions. All the stakeholders are free to communicate truthful information without fear of the consequences.
- It applies a combination of data collection and processing and dissemination, which includes quantitative and qualitative information, particularly with regard to the accomplishment of objectives and strategies.
- It assures compatibility with existing monitoring and evaluation systems used by other partners, in particular with national systems and those of international funding agencies. Special attention will be paid to ensuring compatibility with the GEF's monitoring and evaluation systems.

6.1.4. Main characteristics

The system will be implemented during the first six months of the project. One initial activity will be to adjust the logical framework, examining its consistency and the objectives, goals, and specific site indicators and the construction of chains of results depending on the target groups.

This will be done through participative workshops which include staff and representatives of the project beneficiaries. The monitoring and evaluation system will support the STPE in creating a system that will be compatible with the national system.

The review of the logical framework will include the establishment of: (i) the main monitoring and evaluation activities and responsibilities for performing them, (ii) a commitment that it will be the stakeholders who participate in monitoring and evaluation and the information they require and at what frequencies; (iii) the instruments necessary to compile information on the different project activities and ensure that the proposals made by the project beneficiaries are monitored through profiles and business plans, etc.; and (iv) the guidelines for systemizing the information, particularly in terms of the format and content of the different reporting requirements.

One of the results of the workshop will be a monitoring and evaluation manual that includes the methodology for obtaining the baseline, a mid-term review, and a final project evaluation. The manual will also contain a monitoring and evaluation plan and a framework for the database and presentation of reports.

Shortly after the baseline study is performed, a workshop will be held to compile data for the indicators of impact and effects based on the RIMS methodology and the management requirements for the SENPLADES results framework.

This initial evaluation describes the current situation in the target group without the project and contextual levels so that comparisons can be made later when the project impact is evaluated. The baseline or reference study will be prepared based on a design and systemization of questionnaires that will be designed using statistical methods.

The monitoring and evaluation system will be compatible and aligned with IFAD's monitoring system for the Ibarra-San Lorenzo Development Project and with SENPLADES's one.

6.1.5. Results of the RIMS ²⁴

IFAD cooperates with governments to establish a system for measuring the results of projects, known as the results and impact management system (RIMS). This system stresses impact measurements through the generation and dissemination of information related to a menu of indicators to measure results and impacts in time. The responsibility of inputting information into the system lies with the executing agencies of projects co-financed by IFAD.

The system provides a framework for the systematic presentation of project reports to the country's government agencies and IFAD's senior bodies. An entire list of reference indicators exists for this purpose. The main attributes are its flexibility and the ease of evaluating impact. The system is expected to evolve over time and the list of indicators may change, as experience is gained during project implementation. Its purpose is to provide information on all aspects of the project, giving priority to indicators that are of particular importance to the project. These indicators were selected because they are directly related to the MDGs and/or are representative of the types of results that the government and IFAD hope to obtain in the context of their strategic framework.

The RIMS indicators should reflect the information requirements of the government and IFAD and not replace participative processes intended to promote the involvement of other parties interested in their selection and monitoring. The RIMS approach strengthens the participation of all interested parties, since it explicitly defines the information needed by the project, the government, and IFAD.

In most cases, this information is the same as is required by other participants. Indicators requested by other interested parties that are not included in the RIMS will be included in the design of the monitoring and evaluation system, and will be reflected in the progress and/or supervisory reports.

²⁴ This section is based on IFAD's document Basic Information and Tools for Reporting Project Results, September 2004.

There are three types of indicators.

- **First-level indicators** measure financial and physical progress; they are mostly quantitative (numbers and percentages, e.g., number of irrigation schemes rehabilitated) and are reported on an annual basis. These indicators are measurements of results at either the activity or output levels of the logical framework.
- **Second-level indicators** measure improved functionality and/or behavioural change and are more qualitative (e.g., the sustainability of water users' associations over a given time).
- **Third-level indicators (impact)** measure the combined effects of the first and second level results, are quantitative (e.g., households reporting increased assets), and are measured at three points during the life of the project (benchmark, mid-term and completion). They refer to the goal or objective level of the project.

Two of the indicators used are considered anchor indicators and are significant: (i) the number of households that show an increase in family assets; and (ii) the percentage reduction in infant malnutrition. The first indicator points to an increase in income while the second points to a reduction in hunger.

Both are related to the MDGs and are directly linked to achievements and compliance with IFAD's mandate.

There are two other mandatory indicators that include the number of people benefiting directly or indirectly from the project and the number of households that improve their food security.

The pertinent RIMS indicators are presented in Table 6.1 below.

Table 6.1: Summary of RIMS first- and second-level indicators

FIRST LEVEL RESULTS	SECOND-LEVEL RESULTS
Natural resources (land and water)	
1.1. Number of people trained in infrastructure management (*)	
1.1.2 Groups that manage infrastructure established or strengthened	2.1.1 Probability that trained or strengthened groups managing infrastructure will be sustainable
1.1.3 Members of groups that manage infrastructure (*)	Number of groups operating
1.1.4 Groups that manage infrastructure with women leaders	
1.1.5 Land with irrigation systems constructed or rehabilitated	2.1.2 Effectiveness of production infrastructure Percentage of water supplied compared to needs
1.1.6 Water points for cattle constructed or rehabilitated	Number of farmers with secure access to water Increase in the number of hectares cultivated
1.1.7 Rainwater collection systems constructed or rehabilitated	
1.1.8 Fish ponds constructed or rehabilitated	2.1.3 Probability that the production infrastructure will be sustainable Number of infrastructures in operation Number of farmers with secure access to water Number of fishermen with secure access to the resource base Number of fish ponds operating at the end of three years
1.1.9 Number of people trained in natural resource management (*)	
1.1.10 Groups involved in natural resource management trained or strengthened	2.1.4 Probability that trained or strengthened groups managing natural resources will be sustainable
1.1.11 Members of groups that manage natural resources	Number of groups operating
1.1.12 Groups that manage natural resources with women leaders	
1.1.13 Environmental management plan prepared	2.1.5 Effectiveness of natural resource management and conservation programs
1.1.14 Land subject to improved management practices	Number of hectares of land improved through soil or water conservation methods
Agricultural and production technologies	
1.2.1 Service provider personnel trained (*)	2.2.1 Effectiveness: Better performance by service providers Operating self-sufficiency

FIRST LEVEL RESULTS	SECOND-LEVEL RESULTS
1.2.2 Number of people trained in crop production practices and technologies (*)	2.2.2 Effectiveness: Improved crop and livestock production
1.2.3 Number of people trained in livestock production practices and technologies (*)	Number of farmers who report an increase in production or yield
1.2.4 Number of people trained in fish production practices and technologies (*)	Number of farmers who have adopted the recommended technologies
1.2.5 Number of people whose access to advisory services has been facilitated (*)	Number of farmers who report an increase in flock size Number of fishermen who have adopted the recommended technologies
Markets	
1.4.1 Number of people trained in post-production, processing, and marketing (*)	2.4.1 Effectiveness: Producers who benefit from better market access Number of farmers who use purchased inputs Number of fishermen who use purchased inputs
1.4.3 Commercial storage and processing premises and installations built or rehabilitated	2.4.3 Probability that commercial storage and processing premises and installations will be sustainable Number of commercial storage and processing premises and facilities operating profitably
1.4.4 Marketing groups established or strengthened	2.4.4 Probability that marketing groups established or strengthened will be sustainable
1.4.5 Members of marketing groups (*)	Number of groups operating
1.4.6 Marketing groups with women leaders	
Development of companies and jobs	
1.5.1 Number of people trained in income-generating activities (*)	2.5.1 Effectiveness: Creation of job opportunities Number of jobs created by small and medium-sized companies
1.5.2 Number of people who have received vocational training (*)	
1.5.3 Number of people trained in business and entrepreneurial capacity (*)	2.5.2 Probability that companies will be sustainable Number of companies operating profitably at the end of three years
1.5.4 Companies whose access to non-financial services has been facilitated	
1.5.5 Companies whose access to financial services has been facilitated	
Programming of policies and communities	
1.6.1 Public officials trained (*)	2.6.1 Effectiveness: Promotion of pro-poor policies and institutions Number of pro-poor laws and regulations applied locally or centrally Number of households with secure long-term tenure of

FIRST LEVEL RESULTS	SECOND-LEVEL RESULTS
	natural resources
	Number of enabling policies announced
1.6.2 Number of people trained in community management (*)	2.6.2 Effectiveness: Community development
1.6.3 Community development workers and volunteers trained (*)	Number of community action plans included in local government plans
1.6.4 Community groups established or strengthened	Number of community projects implemented
1.6.5 Members of established or strengthened community groups (*)	2.6.3 Probability that the community groups established or strengthened will be sustainable
1.6.6 Community groups with women leaders	Number of groups operating
1.6.7 Town or community plans prepared	
1.6.8 Number of people with access to development funds (*)	
1.6.9 Agricultural producers' and exporters' organizations established or strengthened	2.6.4 Probability that agricultural producers' and exporters' organizations will be sustainable
Social infrastructure	
1.7.1 Schools built or rehabilitated	2.7.1 Effectiveness of social infrastructure
1.7.2 Health centres built or rehabilitated	Number of households with wells
1.7.3 Drinking water systems built or rehabilitated	2.7.2 Probability that the social infrastructure will be sustainable
1.7.4 Other infrastructure and installations built or rehabilitated	Number of infrastructures, schools, and health centres in operation
	Number of community projects operating
Total progress	
1.8.1 Number of people receiving project services (*)	
1.8.2 Households receiving project services	
1.8.3 Groups receiving project services	
1.8.4 Communities receiving project services	

(*) The data for the indicators should be broken down by gender where relevant. They should also differentiate between indigenous and non-indigenous people.

6.2. MONITORING AND EVALUATION SYSTEM OF THE NATIONAL SYSTEM OF PROTECTED AREAS (SNAP)

The monitoring and evaluation system of the national protected areas system (SNAP) is intended to examine the effectiveness of the management of protected areas in Ecuador. It works on three levels:

1. Monitoring of the annual work plan through activities monitoring and results evaluation reports (protected areas planning system–SIPAP).
2. Measurement of management effectiveness of the SNAP.
3. In general, a good monitoring and evaluation process is impartial, useful, credible, participative and provides feedback. It is simple and systematic. These characteristics also apply to the monitoring and evaluation of the management of protected areas.

Within the buffer zone of the RECC, the project will provide support to the MAE in preparing and monitoring forest and land management plans, which will strengthen the capacity of the sector committees to monitor and enforce the SNAP regulations.

At the same time, the Management Effectiveness Tracking Tool, developed by WWF and the World Bank, is going to be incorporated to specifically monitor and report on the management of a protected area over time.

Criteria to design an effective Monitoring and Evaluation system.

- **Impartiality.** Good monitoring is not based on personal or arbitrary opinions during the analysis process or during the preparation of conclusions and recommendations (IADB 2004). This should hold true not just in a participative process with internal evaluators, but also for a single person outside the programme being evaluated (responsibility of the external evaluator). The well-being of the persons involved and/or affected by the results must be taken into account, and it should be remembered that an evaluation is conducted ethically and legally (Joint Committee 1994 in Patton):
 - i. Useful:** All evaluations must be useful (Patton 1997), since otherwise, who will use the results? How? Who will publish or maintain them in an accessible database? Who will disseminate the lessons learned? These are examples of some of the questions that can indicate the usefulness of an evaluation. It is useless to evaluate if we are unable to provide interested parties with the results.
 - ii. Credible:** If the monitoring is not credible, no one will use it. It must have logical conclusions and recommendations deriving from the analysis and the results which, in turn, are objective information. Monitoring and evaluation must be based on valid and reliable data and there must be certainty that the analysis of the information and data is complete and well done (IADB 2004).
 - iii. Participative:** According to Patton (1997), there are key variables that are absolutely critical in the use of evaluations. In order of importance they are: people, people, people, and people. One of the most important aspects of the evaluation process is the degree of participation. A participative evaluation means that the process, design, analysis, recommendations, and lessons learned belong to the interested parties.

An evaluation must include the perceptions, interests, and needs of everyone. Also, if everyone participates, a sense of ownership is produced of the project or programme and the lessons learned (Patton 1997, IADB 2004). Also, a participative process introduces responsibilities and favours dedication by the participants, helping the programme to move forward during difficult times (Patton 1997, IADB 2004). Last, the better the evaluation process is understood, the greater the participation (Feuerstein 1986, Patton 1997).

- **Feedback:** A good monitoring and evaluation process feeds back into decision making and favours institutional learning (adaptable management). For this to occur, it is important to disseminate the information and results of the entire evaluation process to the interested parties, planners, and policy makers (IADB 2004).

The lessons learned and therefore adaptable management cannot exist without some kind of evaluation. However, monitoring and evaluation can become costly processes. The main thing is to measure and balance the costs of the process against its benefits, understood as the needs of the case and without compromising the validity or integrity of the evaluation (IADB 2004).

- **Simplicity:** An evaluation that does not demand complicated technologies or training (Courrau 1999) can be understood and used by everyone and its execution will be less expensive.
- **Systematic:** The monitoring and evaluation process must be repeated to understand changes over time (IADB 2004). All monitoring and evaluation plans should include a timetable for collecting information, analysis, etc.

Monitoring and evaluation of management in Ecuador. In Ecuador different experiences have been developed in the use and adaptation of monitoring and evaluation methods in protected areas. The first that we know of was carried out in Galápagos National Park in 1995, covering the period since the launch of the second management plan in 1984. The results of the evaluation were used to update the park's management plan in 1996. The basic methodology was the one developed by De Faria (1993) with some variables modified to suit the island nature of the park (Cayot y Cruz 1998 and Amador et al. 1996).

Today, the Ministry of the Environment, as the country's environmental authority, is in a process of formulating a method for evaluating the effectiveness of management in the SNAP. The procedures have not been published yet, since the experts in charge of the process plan to carry out a pilot test of the methodology in two protected areas in the national system, before the dissemination, consensus, and official adoption stages.

ANNEX 7
ORGANIZATION AND BUDGET OF THE PROJECT MONITORING AND
EVALUATION SYSTEM

ANNEX 7 ORGANIZATION AND BUDGET OF THE PROJECT MONITORING AND EVALUATION SYSTEM

7.1. M&E system and budget

The system was designed based on the guidelines for impact monitoring and evaluation for management by results, the framework of IFAD's results and impact management system (RIMS), and the recommendations of the Regional Monitoring and Evaluation Programme (PREVAL). The system will take the SENPLADES supervision and evaluation system into account, and will be implemented during the first six months of the project. One initial activity will be to adjust the logical framework, examining its consistency and the objectives, goals, and specific site indicators and the construction of a chain of results which may differ according to the target groups.

The review of the logical framework will include the establishment of: (i) the main monitoring and evaluation activities and who will be responsible for performing them, (ii) the commitment by the stakeholders to participate in monitoring and evaluation and the information that are required and with what frequencies; (iii) the instruments necessary to compile information on the different project activities and ensure that the proposals made by the project beneficiaries are appropriately monitored and (iv) the guidelines for systemizing the information, particularly in terms of format and content for the different reporting requirements.

The total budget for the monitoring and evaluation activities will amount to US\$ 400,000. The GOE will contribute US\$ 55,000 (13.75 % of overall cost), IFAD US\$ 210,000 (52.5 %), and the GEF US\$135,000 (33,75 %), as shown in the table below:

Detailed budget for the monitoring and evaluation system (US\$)

Type of M&E Activity	IFAD (US\$)	GEF (US\$)	GOE (US\$)	Total (US\$)
• Baseline Study	50 000	50 000		100 000
• Community promoters for M&E (5)		30 000	5 000	35 000
• M&E system, environmental SIG and implementation workshops		55 000	25 000	80 000
• Supervision	100 000	0		100 000
• Audit	20 000	0		20 000
• Mid Term Review	20 000	0	10 000	30 000
• Completion Report	20 000	0	15 000	35 000
Total M&E cost	210 000	135 000	55 000	400 000
% to be financed	52.5%	33.75%	13.75%	100.00%

7.2 Organizational mapping of the monitoring and evaluation system

The planned institutional arrangement includes the following:

1. The monitoring and evaluation system will be established in central project office.
2. The person with main responsibility for the system is the monitoring and evaluation specialist.
3. The monitoring and evaluation system will have the following features (a) it will operate in function of the logical framework for the project; (b) it will be compatible with the monitoring and evaluation system in the STPE; (c) the relevant indicators in the Well-being Plan²⁵ (see text box) will form part of the monitoring and evaluation system; (d) it will produce monthly reports that will be made public on the STPE's web site; the reports will be focused and not more than two pages long; (e) the RIMS indicators will be included; (f) it will be georeferenced.
4. The community promoters will be responsible for compiling relevant information using the fiches indicated by the monitoring and evaluation specialist.

Box 7.1

Compatibility between the project indicators and the National Well-being Plan 2009-2013

The proposed project comes under objective 4 of the Well-being Plan which guarantees the rights of nature and promotes a healthy and sustainable environment. The most relevant output indicators are:

- a) Percentage of the territory under conservation and environmental management
- b) Km² of coastal and marine areas under conservation

The supporting indicators are:

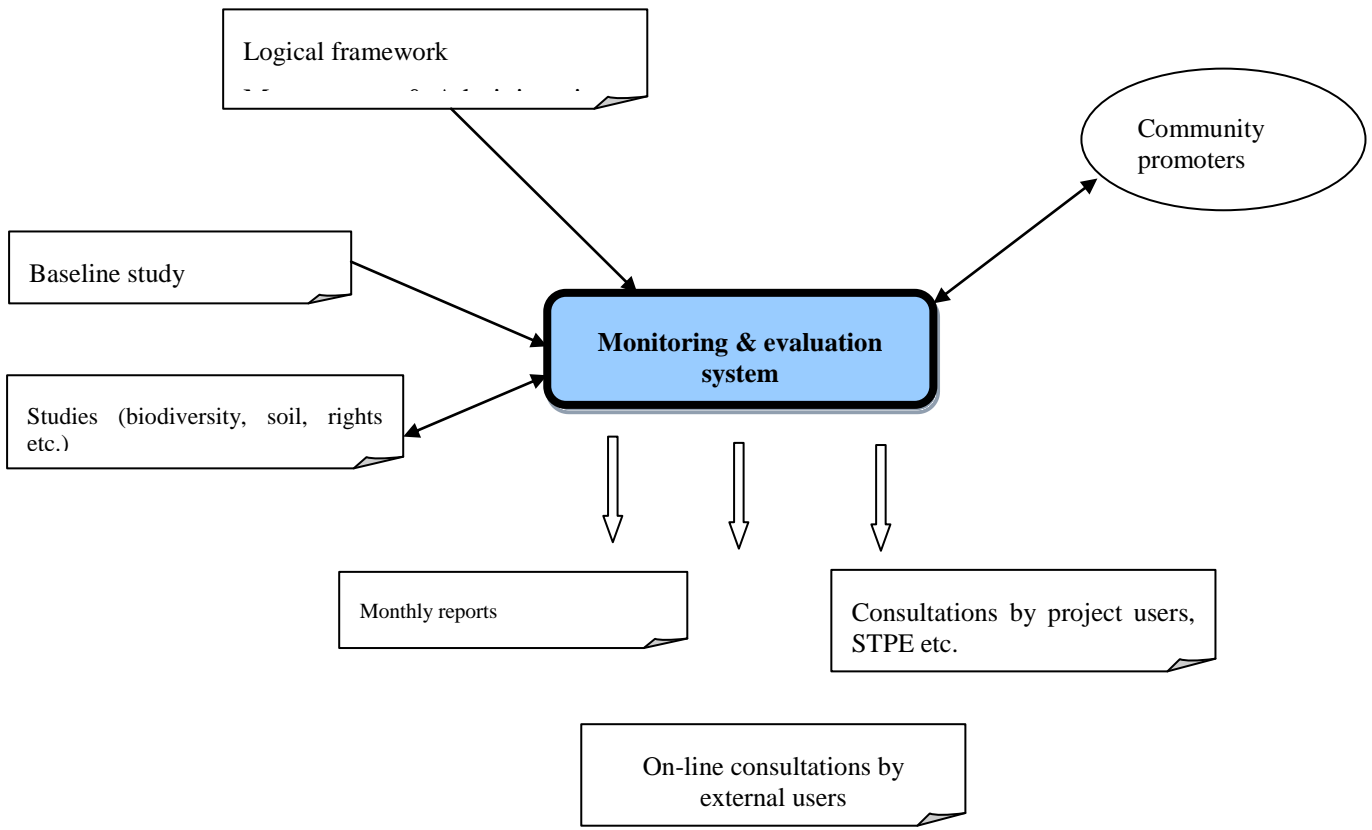
- a) Number of threatened species (UICN) by taxonomic group
- b) Rate of deforestation owing to changes in land use
- c) Rate of deforestation of mangrove swamps

Source: Own, based on the Well-being Plan, Annexes. Office of the President of Ecuador, 2009.

These indicators will be duly treated in the next monitoring and evaluation work plan. The plans will be drawn up annually based on the field work and data collection task.

²⁵ Presidencia del Ecuador, 2009

Graph 7.1. Monitoring and evaluation system flow chart



Graph 7.2

Timetable for implementing the monitoring and evaluation system

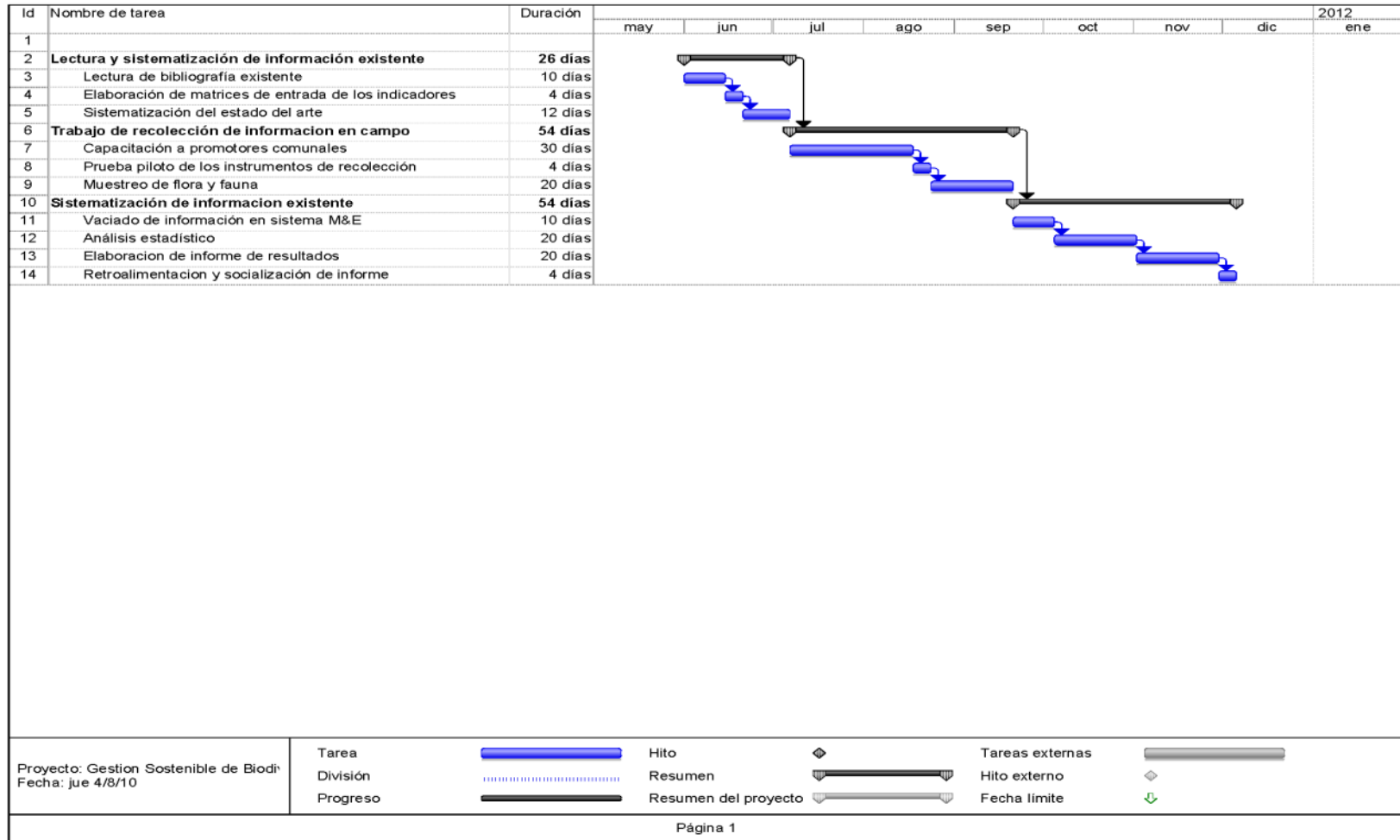


Table 7.2. Summary table of M&E activities and responsibilities

Type of M&E activity	Responsibility	Frequency
Induction workshop	STPE	During the first two months after the project is declared effective
Definition of the baseline (initial indicator values)	STPE procures the pertinent services	Within six months
Measurement of the indicators	STPE, with the assistance of national or international specialized consultants or institutions	Periodically, particularly half-way through and at the end of the project
Confirmation of the means of verification and progress indicators	STPE	Annually
Semi-annual and annual reports	IFAD	Semi-annually
Supervision of data collection at the intervention sites	Local focus groups (GST/GSB), partner institutions	Continuous monitoring activity
Project coordination meetings	PTA, project partners	Depending on circumstances but at least once every three months
Tripartite meeting on the occasion of the supervisory missions	STPE, IFAD, MAE	Semi-annually and annually
Progress reports (technical and financial)	PTA, STPE, IFAD	Semi-annually and annually
Thematic reports	PTA: National and international consultants	At the request of IFAD and the STPE
Self-evaluations	Local institutions involved STPE/PTA	Annually
Mid-term report	PTA External consultants	Half way through the project
Final evaluation	IFAD-GEF manager External consultants	At the end of the project
Final report	PTA/STPE	One month after the formal close, at the latest

ANNEX 8
TERMS OF REFERENCE FOR PROJECT STAFF

ANNEX 8 TERMS OF REFERENCE FOR PROJECT STAFF

NATIONAL TECHNICAL ADVISOR

1.1. BACKGROUND

The design of the Ibarra-San Lorenzo Development Project, which will be co-financed by the GOE, IFAD, the GEF and other stakeholders, includes four components and seven subcomponents, as established below.

Table 8.1
Ibarra-San Lorenzo Development Project. Components

Ibarra-San Lorenzo Development Project			
Component	Subcomponent		
Capacity, citizen's rights, and institutional strengthening	Institution building	Citizenship and access to social benefits	Participative mapping
Management of natural and environmental resources	Natural resource management subproject	Training in the management of natural and environmental resources	GEF project: Sustainable management of biodiversity and water resources
Development of business ventures and value chains		Support for business development	Financing for business activities
Recovery of ancestral knowledge and reaffirmation of cultural identities	Education for culture	Rehabilitation of the tangible heritage	Creative industries and products with identity
Management and administration	Covers the entire project		

Under the component on management of natural and environmental resources, one of the subcomponents has been entitled the Project for Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor, which will be financed by the Global Environment Fund GEF).

Methodological and operational responsibility for the natural resources management subcomponent will be borne by a specialist in natural resources under the framework investment project, and for the GEP project, a national technical advisor (NTA) will be included to support implementation in the general context of the framework project (coordination unit and regional offices) and under the STPE.

1.2. OBJECTIVE

The objective of the role of the NTA is to implement the sustainable management project in cooperation with the specialist in natural resources of the framework investment project, in function of the policies and methodologies established by the STPE and the PCU and in agreement with the regional project offices.

1.3. ACTIVITIES

- Carry out the induction tasks.
- Promote the sustainable management project and systematize demand to turn it into proposals for feasibility studies, design and execution.
- Monitor co-financing agreements and transfers.
- Develop and implement methodologies and tools adapted to the sustainable management project and the framework project in accordance with the approaches taken by the GEF and the framework project.
- Prepare a general operating plan and the AWP and semi-annual adjustments.
- Prepare reports as required for the Ibarra-San Lorenzo Development Project and the Project for Sustainable Management of Biodiversity and Water Resources. Represent the sustainable management project at meetings and in agreements, as determined.
- Lead the process of implementing the sustainable management project.
- In agreement with the framework project authorities, assist and work with GOE, IFAD, and GEF missions.
- Support the audits.
- Oversee the maintenance and proper use of project assets.
- Develop and implement accounting methods and tools for the sustainable management project that are adapted to the Ibarra- San Lorenzo Development Project, based on GEF approaches.

1.4. OUTPUTS

- Project promoted and known to the target population and local, regional, and national stakeholders.
- Agreements signed and implemented.
- Plan of operations designed and implemented.
- Periodic reports presented and approved.
- Baseline defined and being applied.

1.5. TERM

5 years

1.6. COST: US\$90.000

1.7. ADVISOR'S PROFILE

- General experience: 5 years professional experience after obtaining an academic degree.
- Proven experience as manager of at least two projects, with references or performance certificates.

- Local experience. Have worked in the project zone or a similar area.
- Graduate degree in environmental or social sciences or some other discipline, but must have experience in eco-production themes.

1.8. PERFORMANCE MONITORING AND TYPE OF CONTRACT

- The national technical advisor will report to and work with the natural resources advisor under the organizational framework of the Ibarra-San Lorenzo Development Project and the STPE.
- The contract will be for one year renewable, contingent on a performance rating of “higher than satisfactory” which will be evaluated as part of the AWP.
- Any act of corruption that compromises the project’s good name will be cause for the suspension or termination of the contract.

ANNEX 9
LIST OF PERSONS INTERVIEWED

ANNEX 9 LIST OF PERSONS INTERVIEWED

Table 9.1
Consultations with institutional officers

Name	Institution	Position
Martha Moncada	Technical Secretariat, Plan Ecuador	Technical Secretary
Shannon Cadena	Technical Secretariat, Plan Ecuador	Coordinator Imbabura
Marco Ballesteros	Technical Secretariat, Plan Ecuador	Coordinator Esmeraldas
Diana Martucci	Focal Point. Ministry of the Environment-GEF	Director, Climate Change
Pablo Druet	Focal Point. Ministry of the Environment-GEF	Technical Expert
Pedro Ponce	European Commission	Specialist
Jean Marie Abbes	Rural Development Programme, Northern Ecuador	Principal Technical Advisor
Armando Grijalva	PRODERENA Project	National Coordinator
Alexandra Maldonado	AGECI	Multilateral Organizations
Patricio Silva	SENPLADES Region 1	Deputy Secretary
Iván Zambrano	SENPLADES Region 1	Investment Director
José Chalá	CODAE	Secretary General
John Antón	CODAE	Advisor
Gilberto Méndez	Tuna Pimampiro Project	Director

Table 9.2
Consultations in El Chota, Lita, and San Lorenzo

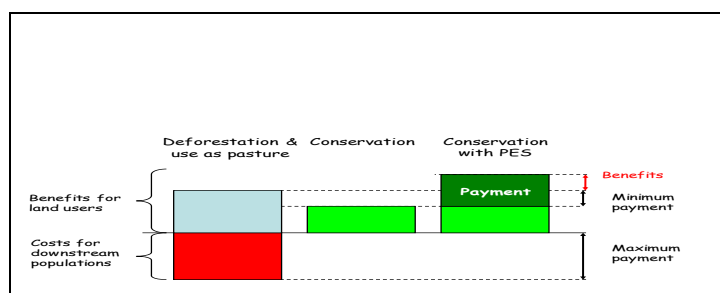
ANNEX 10
PAYMENT FOR ENVIRONMENTAL SERVICES

ANNEX 10 PAYMENT FOR ENVIRONMENTAL SERVICES²⁶

Payment for environmental services (PES) consists of transfers (generally in the form of cash) to users of certain lands, contractually conditional on maintenance of the environmental services provided by those areas. The fundamental hypothesis is that the environmental services will be maintained thanks to the use of practices that conserve the good condition of natural resources.

Figure 10.1

Payment for environmental services. Minimum payment= opportunity cost



Five simple criteria have been used to describe the principle of PES: (1) a voluntary transaction in which (2) a well-defined environmental service (ES), or an area of land to assure that service, (3) is being 'bought' by at least one buyer (4) from at least one supplier if, and only if (5) the supplier guarantees the provision of the ES, i.e. with conditions.

There are currently four main types of PES based on the provision of the following services.

1. Carbon capture (e.g. a company in the north pays farmers in the tropics to plant and maintain additional trees);
2. Protection of biodiversity (e.g. donors with a special interest in the conservation of biodiversity pay the inhabitants of a zone to conserve given areas or allow them to regenerate naturally and/or create a biological corridor). One example is the Noel Kempf Mercado Park in Bolivia.²⁷
3. Watershed protection (e.g. users of water downstream pay farmers upstream to adopt land use practices that limit deforestation, erosion, flooding, etc.). Pimampiro, one of the oldest arrangements of this kind, is one example in Ecuador (described below).
4. Conservation of landscape (e.g. a tourism operator pays a local community not to hunt in a forest that is used by tourists to observe wild animals).

²⁶ CIFOR, 2005. Payments for environmental services; some nuts and bolts. Occasional paper No. 42.

²⁷ This PES was established in 1997 for the purpose of mitigating CO₂ emissions from deforestation. It was based on payments: (i) to forest concession holders to abandon their logging rights on government land to expand the area of the national park; (ii) effective enforcement of the ban on logging in protected areas inside the park, reducing slash and burn agriculture; and (iii) the introduction of projects to generate alternative sources of income for surrounding communities to compensate for the lost rights of access to forest and land resources and the loss of income from jobs with logging companies. Co-financed by three American companies (American Electrical Power System, BP Amoco, and Pacific Corp.), with two NGOs (the Nature Conservancy and Fundación Amigos de la Naturaleza) as intermediaries, the project will last for a total of 30 years and is now in its third phase (2007-2010).

Source: CIFOR : Reducing forest emissions in the Amazon basin.

Figure 10.2
PES. Examples of initiatives in different countries

Colombia:	<ul style="list-style-type: none"> ▪ Water users in the Cauca valley ▪ Proposal Río Chaina
Costa Rica:	<ul style="list-style-type: none"> ▪ FONAFIFO/payments for environmental services ▪ Heredia: Environmental water tariff
Ecuador:	<ul style="list-style-type: none"> ▪ Quito: FONAG ▪ Pimampiro
El Salvador:	<ul style="list-style-type: none"> ▪ Permanent panel on environmental services ▪ Tacuba, San Francisco de Menéndez, Yamabal
Mexico:	<ul style="list-style-type: none"> ▪ Payment for hydrological environmental services ▪ Coatepec
South Africa	<ul style="list-style-type: none"> ▪ Work for Water Programme

Source: World Bank.

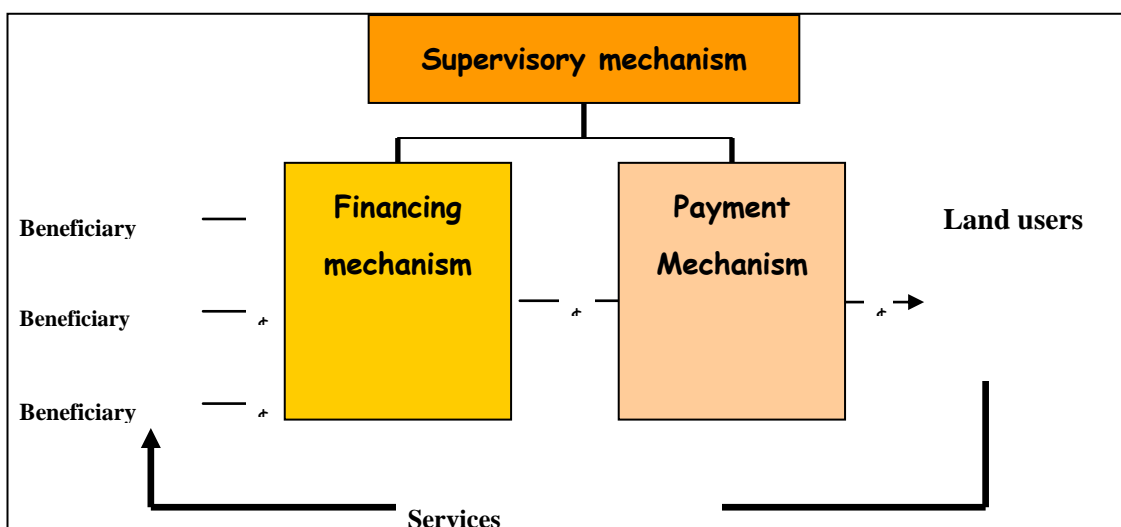
Like many services, ecosystems are public goods and in general government intervention is required to organize direct payments for a service and/or to establish property rights or regulations to govern business plans. These markets are marked by high transaction costs to link buyers and sellers and by the absence of specialized institutions. Therefore government assistance is normally required to surmount these two major limitations. Indirect payments through certification plans are dominated by private buyers.

In most cases, payments for ecosystem services only cover a modest portion of the costs of good forest management, but that part has the potential to act as a catalyst. In general, the prices of ecosystem services are not high enough to justify forest conservation in zones where the opportunity costs of land are moderate to high. However, evidence shows that such payments can have a disproportionately high catalytic effect on forest establishment and management. Even modest payments made reliably over a number of years can increase net income and allow forest companies to be viable, justifying the restoration of degraded land and improvement the livelihood of the poor population.

A case in Ecuador: the Pimampiro PES

This project is located in the Andean municipality of Pimampiro. It was introduced in 2000 in the upper Río Palaurco watershed that serves the municipality’s 13,000 inhabitants to ensure water quality and quantity and avoid deforestation in a highland the community. The arrangement was established by CEDERENA (Corporation for the Development of Renewable Natural Resources), a local NGO. The recipients of the transfer payments are 27 households in the Nueva América cooperative located upstream in the Palaurco watershed. Initially, the PES was contracted for five years, but at the end of 2005, the participants renewed their commitment for an indefinite period.

Figure 10.3. Operation and management of a PES



The quarterly payments are conditional on compliance with the contractual clauses and vary depending on the type of forest: US\$6/year/ha for disturbed forest, US\$9/year/ha for mature secondary forest, and US\$12/year/ha for primary forest. The recurrent funds for the transfer payments come from a 20% surcharge on the price of water for the 1,350 families with metered connections in Pimampiro, plus the interested earned by a trust fund that was established with a donation of US\$15,000. The programme has initially been a great success: deforestation has halted and plant cover has regenerated very well. The current challenge for the municipality is to maintain a credible supervisory system.

In cooperation with a local NGO, EcoCiencia, CIFOR has been conducting a hydrological study and examining the changes in the opportunity costs of conservation for the suppliers of services. The study concluded that the PES in Pimampiro helped to check the conversion of forests into crop and livestock farms in areas that are important for the stability of the water regime. In this case, no economic assessment was made of willingness to pay on the demand side or the compensation required on the supply side—the rate was simply established based on a classification of land use. Perhaps an economic valuation is not necessary for small communities, where the transaction costs of economic studies are too high and where suppliers and demanders can establish agreements based on trust.

It is important for producers to understand that PES is not a market game but rather a small incentive for them to use their land under conservationist systems that permit them to produce, while simultaneously assuring conservation.

ANNEX 11
THE SOCIO BOSQUE PROGRAMME

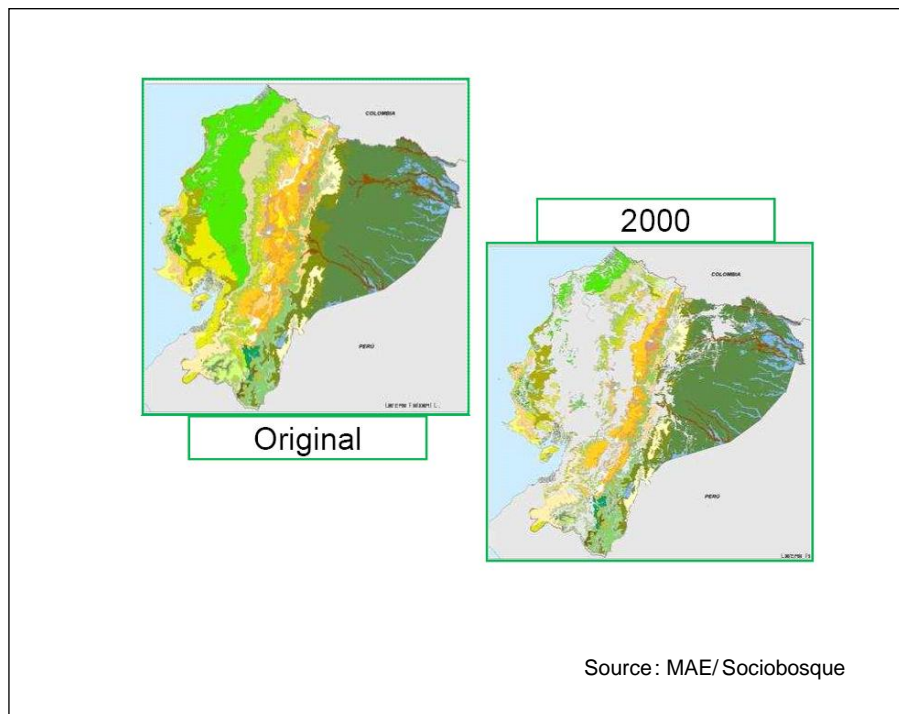
ANNEX 11 THE SOCIO BOSQUE PROGRAMME

At present, Ecuador has forest cover of approximately 10 million hectares, which includes different types of forests such as the humid tropical forest, the mountain forest, the highland Andean forest, and the dry forest. Just 40% of this forested area belongs to the national system of protected areas (SNAP), while the remaining 60% is in the hands of individual owners, communes, and indigenous communities.

The native forests, páramos, and other native plant cover are highly important for the environmental services they provide, including carbon storage, biodiversity refuge, soil protection, and freshwater reserves. The forests also have a high economic, cultural, and spiritual value.

In an economic study conducted in 2006, the economic value of the environmental services generated by the forests in the SNAP alone was estimated as US\$45 billion a year, which was the equivalent of Ecuador's entire GDP in that year. Despite the country's wealth in native plants, it has high levels of deforestation (Figure 4.1). Ecuador has one of the highest deforestation rates in Latin America, for about 200,000 ha cleared each year. This signifies a large loss of environmental services and the means of subsistence for thousands of people who live off the forest, to say nothing of the rise in CO₂ emissions.

Figure 11.1. Forest cover in Ecuador

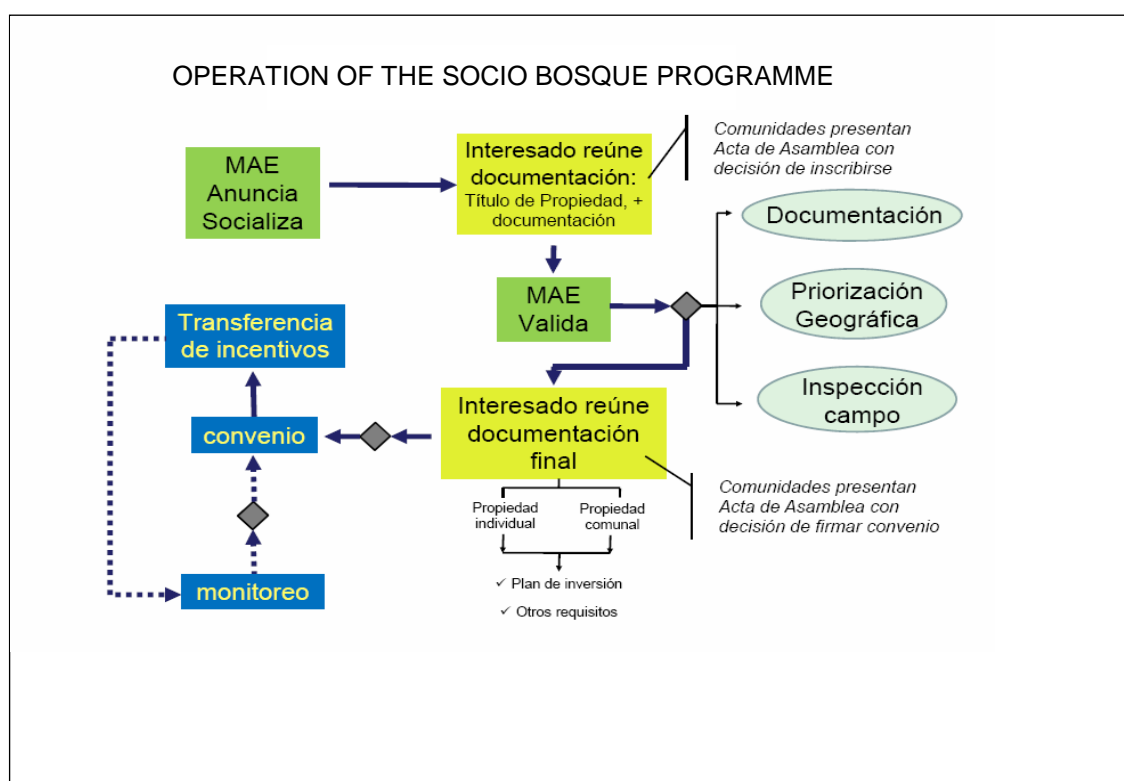


Socio Bosque consists of a transfer payment to farmers and indigenous communities who voluntarily commit to the conservation and protection of their native forests, páramos, or other native plant cover. The programme has the following objectives:

1. To conserve native forests²⁸ and other native ecosystems²⁹ in order to protect their enormous ecological, economic, cultural, and spiritual value. The goal is to conserve 4 million hectares of forest and other ecosystems in the next seven years.
2. Significantly reduce deforestation and the emissions of greenhouse gasses it causes.
3. Improve the living conditions of farmers, indigenous communities, and other rural populations. It is expected that between 500,000 and 1 million people will benefit.

The incentive can be up to US30/hectare/year, depending on the number of hectares that an owner wishes to include in the programme. Payment of the incentive is conditional on the protection and conservation of their forests, which means that people are paid the incentive once the conditions established in the agreement they sign with the Ministry of the Environment have been complied with. The implementation mechanism is summarized in Figure 9.2.

Figure 11.2. Implementation of a Socio Bosque agreement



All individuals, legally-established communes, and indigenous groups can participate in Socio Bosque. However, priority is given to areas that comply with certain criteria: areas with high threat of deforestation, areas that are relevant for the generation of environmental services, and areas with high poverty levels.

Interested parties are required to present certain documents for registration, the most important being the property title. After an analysis of the priority of the area and a field verification, it is determined whether the lands are eligible to join Socio Bosque and if so, an agreement is signed after

²⁸ Native forest (Socio Bosque Operation Manual) is defined as all plant formations composed of native species that result from a natural process of ecological selection. The formation must also provide at least three of the following environmental services: biodiversity refuge, water regulation, carbon sink.

²⁹ Refers to other native formations such as scrubland, páramos.

supplementary documentation is provided. The agreement in which the owner of the land undertakes to conserve the area included in Socio Bosque remains in effect for 20 years.

Cumulative outcomes as of January 2010

The programme has entered into more than 400 contracts (43 of which are with communities) to protect more than 400,000 hectares and benefits close to 10,000 families. It has obtained financial support from the KfW banking group and negotiations are under way with institutional and private donors to obtain more support.

Among the few other pioneering experiences that Socio Bosque draws inspiration from is the Fondo Nacional de Financiamiento Forestal (FONAFIFO) [National Forest Financing Fund] of Costa Rica. FONAFIFO goes back to 1990 with the promulgation of Forest Act No.7174 (1990) and its Enabling Regulations, whose aim was to finance forest development activities. FONAFIFO carries out the Environmental Services Payment Programme (PPSA) which benefits small and medium-sized owners of forested land or land with forest potential, to promote maintenance and recovery of the country's forest cover.

FONAFIFO's PES provides government financial recognition to the owners and holders of forests and forest plantations for the environmental services they provide which have a direct impact on environmental protection and improvement. Under Forest Act No. 7575 (1996), Costa Rica recognizes the following as environmental services: mitigation of greenhouse gas emissions, protection of water for urban, rural or hydroelectric uses, protection of biodiversity for conservation and sustainable use, scientific and pharmaceutical uses, research and genetic improvement, protection of ecosystems and life forms, natural scenic beauty for tourism and scientific purposes.

Part of FONAFIFO's resources comes from the country's budget. By law, 3.5% of the selective tax on fuel will be earmarked to pay for environmental services. Other income comes from the forest tax.

Income also comes from a loan from the World Bank to the government. Other sources include a contract with the German government through the KfW banking group. On the national level, income is generated from FONAFIFO activities, such as agreements for protection of water resources with Global S.A., Hidroeléctrica Platanar S.A., and contracts for the sale/purchase of environmental services with Compañía Nacional de Fuerza y Luz (CNFL), and Florida Ice & Farm.

ANNEX 12
MAIN OBJECTIVES OF RESTORATION AND INTERVENTIONS IN THE
MANAGEMENT OF FORESTS AND DEGRADED LAND

ANNEX 12

MAIN OBJECTIVES OF RESTORATION AND INTERVENTIONS IN THE MANAGEMENT OF FORESTS AND DEGRADED LAND

Type of degraded land/forests	Objectives of rehabilitation	Management activities					
		PROTECT	CONSERVE A&T	MAN REG	ENR PLANT	PLANT	AGRO FOR
Farmland	Restoration of soil fertility						
	Restoration/increase in productivity						
	Satisfaction of basic subsistence requirements						
	Income generation						
	Protection from fire, wind, etc.						
	Restoration/conservation of biodiversity						
River banks	Bank protection						
	Improvement of water quality						
	Restoration/conservation of biodiversity						
Micro-watershed slopes	Erosion control and prevention						
	Slope stabilization						
Productive forests	Restoration/increase in productivity						
	Restoration/conservation of biodiversity						
	Protection against fire, illegal logging, illegal settlement, etc.						
	Protection against erosion						
	Income generation						
Protected areas	Restoration of ecological integrity						
	Restoration/conservation biodiversity						
	Increase the population of endangered species						
	Protection against fire, logging, overgrazing, etc.						
Mining zones	Restoration of ecological integrity						

ANNEX 13
INFORMATION ON KEY COMPONENTS OF THE LANDSCAPE MOSAIC FOR
PLANNING FOREST LANDSCAPE RESTORATION (FLR) STRATEGIES AND
ACTIVITIES

ANNEX 13
INFORMATION ON KEY COMPONENTS OF THE LANDSCAPE MOSAIC FOR
PLANNING FOREST LANDSCAPE RESTORATION (FLR) STRATEGIES AND
ACTIVITIES

Key components of the landscape mosaic	Uses of information	Sources of information
<i>Land use</i>		
Land use patterns (different categories of forest, agricultural and pastoral land)	Strategic planning purposes	Maps, aerial photographs
Trends in land use (e.g. forest areas increasing or decreasing; forests becoming more or less degraded; agricultural areas increasing or decreasing).	Determining overall restoration and rehabilitation strategies	Discussions with key informants, government officials, local farmers, scientists, etc. Local views can differ from official views, and cross-checking may be necessary.
Population patterns and labour availability	For example, identifying spare time in the agricultural calendar that could support restoration and rehabilitation activities	Official records; discussions with key informants, particularly local people.
Local (indigenous) knowledge of history, harvesting practices, ecological aspects, ethnobotany	Cross-checking information derived from official sources and informing restoration and rehabilitation strategies	Discussions with local communities and researchers who have worked in the area.
<i>Drainage</i>		
Physical landscape features (e.g. contours, streams, drainage lines).	Planning restoration and rehabilitation strategies.	Maps, aerial photographs
<i>Land tenure</i>		
Land ownership. See land tenure overlay in Figure 5.1	For example, identifying key stakeholders	Cadastral boundaries will give official legal situation. Discussions with land occupiers or managers will give local views of use rights, which could differ from the official view.
Historical legacy of different or contested tenure (or access and use rights)	Determining restoration and rehabilitation strategies that will be sustainable.	Official records; discussions with government officials, NGOs and local people.
<i>Biotic impact</i>		
Where are the problems: threatened species, biodiversity hotspots, eroding areas, fragmented habitats, weeds or pests?	Determining restoration and rehabilitation strategies.	Maps, aerial photographs, publications, local knowledge, specialist knowledge (government and NGO scientists, etc.).
<i>Other aspects</i>		
Infrastructure (including roads, railways, towns, and villages)	General planning purposes	Maps aerial photographs
Geology and soil types	Deciding, for example, appropriate species for planting in different sites	Maps and local knowledge

Source: ITTO.

ANNEX 14
CONTRIBUTION OF KEY LANDSCAPE AREAS TO AN INITIATIVE FOR
RESTORATION OF THE FOREST LANDSCAPE

ANNEX 14

CONTRIBUTION OF KEY LANDSCAPE AREAS TO AN INITIATIVE FOR RESTORATION OF THE FOREST LANDSCAPE

Key areas of the landscape	Contribution to a FLR initiative
<i>Forested zones</i>	
Intact natural forest (large areas)	These contain much of the conservation and development values of the initial forest landscape and are often the key building blocks for FLR initiatives. They generally need to be connected with restored and rehabilitated areas of the landscape to strengthen their contribution to FLR objectives.
Intact natural forest (small areas)	These provide important conservation and development values on-site that can be enhanced by expansion and connection to other key forest patches and areas to be restored and rehabilitated.
Plantations	These contain some conservation and development attributes that can be enhanced by management. They can also serve as useful buffers around degraded forests and protected areas.
Degraded forest or shrublands (large areas)	These can be key targets for restoration and rehabilitation and for connecting to other parts of the forest landscape.
Degraded forests or shrublands (small areas)	These can provide some conservation and development values that can be enhanced by restoration and rehabilitation and by connecting these areas to other key parts of the forest landscape.
<i>Non-forested areas</i>	
Farmland	Management of this land can be modified to contribute to FLR objectives.
Trees on farms	These can contribute to conservation and development outcomes, particularly if connected with intact forest patches.
Riverine (riparian) strips	These are important habitat types and building blocks for connectivity in the landscape. They may require restoration or rehabilitation to protect both on-site and downstream soil and water values.
Degraded areas	These provide an opportunity for rehabilitation for on-site conservation and development benefits and for improved connectivity between natural forest patches.
Eroded areas, landslips	These areas require special treatment to protect both on-site and downstream values.

Source: ITTO. Restoring Forest Landscapes. Technical series No. 23, 2005.

ANNEX 15
LIST OF PROJETS IN THE UNDP/GEF SMALL DONATIONS PROGRAMME

ANNEX 15

LIST OF PROJETS IN THE UNDP/GEF SMALL DONATIONS PROGRAMME

ALTROPICO has signed inter-agency agreements with different organizations and is executing the following projects under them:

Proyecto Páramo Andino (Ecoscience) Comprehensive conservation of the páramos in four South American countries: Venezuela, Colombia, Ecuador, and Peru (2006-2009).

World Wildlife Fund (WWF). Colombia. Conservation and sustainable development of the Chocó biogeographic region. Building capacity to improve the quality of life and environmental sustainability (2003-2008).

Transborder Páramo Project. Consolidation of conservation scenarios and expansion of binational protected areas in cross-border páramos (2006-2008).

PRODERENA GISRENA (European Union). Programme to support decentralized management of natural resources in three provinces in northern Ecuador, financed by the European Union (2007-2009).

John D. and Catherine T. Macarthur Foundation. Establishment of the Chiles Mataje biological corridor, consolidation of indigenous territories and protected areas in the Colombian-Ecuadorian border region, which includes the provinces of Esmeraldas and Carchi. These areas include the El Angel Biological Reserve, the La Esperanza indigenous commune, the Golondrinas protective forest, the Awá indigenous territory, and various community forest reserves in the process of being established in this region (2006-2009).

Overbrook Foundation. Consolidation of community forest reserves, environmental management in four communities, and the establishment of ecological groups in the region located in the Chiles Mataje biological corridor in northwestern Ecuador (2006-2007).

Friends of the Earth Sweden. Sustainable use of natural resources and territorial planning and consolidation in forest communities and protected areas in the Choco Sur ecoregion—southwest Colombia and northwest Ecuador (2000-2009).

Wildlife Conservation Society (WCS). The society's mission is to save wildlife and wild places around the globe through science, global conservation, education, and the management of the largest system of urban wildlife parks in the world. Integrated management of indigenous territories (2008-2009).

ANNEX 16
AUDITING FOR SUSTAINABLE FOREST MANAGEMENT (SFM)

ANNEX 16

AUDITING FOR SUSTAINABLE FOREST MANAGEMENT (SFM)

In the forest sector, auditing is an essential element in supervision and control and has traditionally been used to verify that the legal requisites have been complied with by forest owners and operators. These requirements generally cover only those aspects of forest management that are regulated. They can include:

- Legislation governing forestry and exploitation. For example:
 - Prohibition of the exploitation of protected or threatened species.
 - The minimum diameter of trees that may be logged.
 - The volume that can be extracted per hectare.
 - The non-exploitation of key biotypes around streams above a specific height or on slopes that exceed a specific gradient.
- Compliance with an approved management plan.
- Forestry measures supported by the public sector, through direct subsidies or soft loans (for example, for reforestation of degraded areas, farm-forestry, preparation of management plans, etc.).

Different requisites are frequently defined that are independent of each other and auditing procedures have been designed for each of them. Recently attention has been paid to measures to improve the efficiency and effectiveness of audits. Reliable auditing can be used as a tool to improve the quality of governance, which has been debated in the forestry sector where corruption is a problem.

ANNEX 17
SIZE OF PROTECTED AREAS IN ECUADOR

ANNEX 17 SIZE OF PROTECTED AREAS IN ECUADOR

Name of the area	Land	Marine	
Nombre de Area	Superficie Terrestre	Superficie Marina	Total
1. Parque el Cóndor		0	24
2. Parque Nacional Cajas	288	0	288
3. Parque Nacional Cotopaxi	334	0	334
4. Parque Nacional Galápagos	6.937	0	6.937
5. Parque Nacional Llanganates	2.197	0	2.197
6. Parque Nacional Machalilla	562	0	562
7. Parque Nacional Podocarpus	1.463	0	1.463
8. Parque Nacional Sangay	5.178	0	5.178
9. Parque Nacional Sumaco Napo Galeras	2.052	0	2.052
10. Parque Nacional Yasuní	9.820	0	9.820
11. Parque Nacional Yacuri	431		431
11. Reserva Biológica Limoncocha	46	0	46
12. Reserva Biológica Marina de Galápagos	-	141.100	141.100
13. Reserva Ecológica Antisana	1.200	0	1.200
14. Reserva Ecológica Arenillas	171	0	171
15. Reserva Ecológica El Ángel	157	0	157
16. Reserva Ecológica Cayambe Coca	4.031	0	4.031
17. Reserva Ecológica Cayapas Mataje	513	0	513
18. Reserva Ecológica Cofán Bermejo	555	0	555
19. Reserva Ecológica Cotacachi Cayapas	2.436	0	2.436
20. Reserva Ecológica Los Ilinizas	1.499	0	1.499
21. Reserva Ecológica Mache Chindul	1.192	0	1.192
22. Reserva Ecológica Manglares Churute	501	0	501
23. Reserva Geobotánica Pululahua	34	0	34
24. Reserva Faunística Cuyabeno	6.034	0	6.034
25. Reserva Faunística Chimborazo	586	0	586
26. Reserva de Producción de Fauna Manglares El Salado	52	0	52
27. Refugio de Vida Silvestre Isla Corazón Islas Fraguatas	7	0	7
28. Refugio de Vida Silvestre Isla Santa Clara	0	0	0
29. Refugio de Vida Silvestre La Chiquita	8	0	8
30. Refugio de Vida Silvestre Manglares Estuar. R Muisne	32	0	32
31. Refugio de Vida Silvestre El Zarza	36	0	36
32. Refugio de Vida Silvestre Pasochoa	5	0	5
33. Área Nacional de Recreación El Boliche	4	0	4
34. Área Nacional de Recreación Parque Lago	23	0	23
35. Reserva Biológica El Quimi	91	0	91
36. Refugio de Vida Silvestre Manglares El Morro	100	0	100
37. Refugio de Vida Silvestre Manglares estuario del Río Esmeraldas	2	0	2
38. Refugio de Vida Silvestre Marino Costero Pácoche	50	86	136
39. Refugio de Vida Silvestre Marino Costero Sta. Elena	2	473	475
40. Refugio de Vida Silvestre Marina Galera San Francisco	-	546	546
Total	48.653	142.205	190.857

Source: Ministry of the Environment of Ecuador