PROJECT COMPLETION REPORT

ECUADOR

PASTAZA BIODIVERSITY CONSERVATION PROJECT

GEF MSP GRANT No. TF-051726-EC

SEPTEMBER 5, 2006

Bolivia, Ecuador, Peru and Venezuela Country Managing Unit
Environmentally and Socially Sustainable Development Sector Unit
Latin America and the Caribbean Region

PROJECT COMPLETION REPORT

ECUADOR

PASTAZA BIODIVERSITY CONSERVATION PROJECT
GEF MSP GRANT No. TF-051726-EC

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

ACSUR: Association for the Cooperation with the South (Asociación para la Cooperación con el Sur)
CISA: Center for Socio-Environmental Information of Pastaza (Centro de Información Socio Ambiental de Pastaza)
CODENPE: Council for the Development of Nations and Peoples of Ecuador (Consejo de Desarrollo de Nacionalidades and Pueblos del Ecuador)
CTRA: Technological Center of Amazon Resources (Centro Tecnológico de Recursos Amazónicos)
DIPEIB- Pastaza: Provincial Leadership of Bilingual Indigenous Education of Pastaza (Dirección Provincial de Educación Indígena Bilingüe de Pastaza)
IACYT-A: Amazon Environmental Institute of Science and Technology-Amazanga (Instituto Ambiental Amazónico de Ciencia and Tecnología "Amazanga")
IQBSS: Quichua Institute of Biotechnology Sacha Supai (Instituto Quichua de Biotecnología Sacha Supai)
OPIP: Organization of Indigenous Peoples of Pastaza (Organización de Pueblos Indígenas de Pastaza)

GLOSSARY OF QUICHUA TERMS

Apamama: grandmother
Apayaya: grandfather
Arabela Yacu: River Arabela
Atun yacu: principal river of the territory
Atun Charapa: aquatic turtle of the species *Podocnemis expansa* – Pelomedusidae
Ayllu: group of relatives by blood relation, affinity and ritual that form a social unit within the community. It is the extended family where relatives are recognized in generational order and by gender.
Aymu Yacu: River Aymu
Cachi: land that contains minerals valued by the fauna of the area.
Chacra: initial agricultural ecosystem or ancestral agricultural production unit where a large variety of useful plants for the family are concentrated and managed.
Cucha: large lagoon
Chanlla: rodent of the genus *Myoprocta sp.*, also known as *guatín*.
Charapa: aquatic turtle of the genus *Podocnemis.*
Jita: small lagoon
Lagarto: generic name of any of the four species of Amazon alligator.
Lorocachi: name of Quichua community, meaning salting house of the parrots.
Lumucha: wild rodent of the species *Agouti paca*, also known as *guanta* or *paca*.
Muriti turu: forest of palms that floods with a high concentration of Muriti *Mauritia flexuosa*- Arecaceae.
Nina Amarun: name of Quichua community, meaning boa of fire.
Pamba: non-flooding forest of the prairie.
Purina: seasonal areas of hunting, fishing and agro ecosystem management that *ayllus* of the community possess, allowing for land to lie fallow for the cultivation of *chacras*, controlling the over-exploitation of hunting and fishing resources of the forests, rivers and lagoons surrounding the populated center.
Purun: transitional forest ecosystem with a high level of useful species of trees and palms, product of succession of vegetation of the *purun* and management of families.
Sacha: jungle, vital space that includes all terrestrial forest ecosystems.
Sacha Runa Yachai: collective ancestral knowledge that is developed and transmitted orally from generation to generation through daily practices, from myths, sasi, muscui, taqui, paju, that allows for social, spiritual and environmental health. *Sacha*

Runa Yachai contains all ancestral knowledge related to the management of the territory, ecosystems and biodiversity in existence in the community territories.

Shiona: palm of the species *Euterpe precatoria* – Arecaceae.

Sindi Yacu: River Sindi

Sumac Allpa: "land without badness; fertile land", productive land for the cultivation of *chacra, ushun* and *purun*; pure air to breathe; clean water of the rivers and lagoons; different ecosystems of the community territory (pamba, urcu, turu); diversity of the fauna and flora; the sacred places where the *supai* live; the landscapes, sounds and aromas of the forest.

Sumac Causai: "good life", principle that establishes the need to live among families with nature. This harmony is achieved when one exercises solidarity and reciprocity among people and families.

Supai: god protector of integrity and equilibrium of the forest and beings that inhabit it, from the rivers, lagoons, fertility.

Taricaya: aquatic turtle of the species *Podocnemis unifilis* – Pelomedusidae.

Turu: forest that floods with a high concentration of palms.

Urcu: non-flooding hillside forest.

Ushun: agricultural ecosystem with succession of vegetation between *chacra* and *purun*.

Yacu: water, river; it is a vital space that includes all the aquatic ecosystems and habitats of a territory.

Yacua: small stream, unnavigable.

Yacu pata pamba: forest that floods located on the banks of the principal rivers.

Yachac: Quichua wiseman with great ancestral knowledge.

Yana Yacu: name of community, meaning black river.

PROYECTO DE CONSERVACIÓN DE LA BIODIVERSIDAD EN PASTAZA
GEF MSP GRANT No. TF-051726-EC

Project Completion Report

I. Basic Data:

(1) Date of Completion Report: ***September 5, 2006.***

(2) Project Title: ***PASTAZA BIODIVERSITY CONSERVATION PROJECT***

(3) GEF Allocation: ***US$763.000***

(4) Grant Recipient: ***INSTITUTO QUICHUA DE BIOTECNOLOGÍA SACHA SUPAI***

(5) World Bank Manager/Task Team: **Gabriela Arcos**

(6) Goals and Objectives:

No changes were made to the goals and objectives of the project during the implementation period.

The goal of the project was to contribute to global ecological equilibrium and maintenance of biological diversity through the conservation and sustainable use of the resources of the Amazon forest in the province of Pastaza. The specific objective was to conserve and attain in situ management of the ecosystems and biodiversity of the Amazon forest in the territories of the indigenous communities of Pastaza through the implementation of three components: 1) Design and application of Management Plans in three community territories; 2) Establishment of a Socio-Environmental Information Center for the Indigenous Territories of Pastaza; and 3) Design and implementation of a Capacity-Building program on Environmental and Natural Resource Management.

The project was developed by the Inter-institutional Network of Specialists in Environmental Management, which incorporated the Quichua Institute of Biotechnology (IQBSS), the Amazon Environmental Institute of Science and Technology ("Amazanga" IACYT-A), Technological Center of Amazon Resources and the Omaere Foundation. The network is a combination of local NGOs that work on environmental issues in the province of Pastaza and technicians from the Quichua communities.

The process of territorial organization and management of strategic biological resources of the Quichua community territories of Yana Yacu, Nina Amarun and Lorocachi was undertaken under the constant guise to recuperate the ancestral knowledge[1] of the Quichua people (*Sacha Runa Yachai*), in order to recover the environmental equilibrium (*Sumac Allpa*) and social equilibrium of the communities (*Sumac Causai*). The Quichua communities conceive of territorial organization as a participatory process of identification and establishment of distinct zones of management in their territories, taking into consideration ancestral criteria for the use

[1] Ancestral knowledge is the set of concepts, meanings, skills and routines developed over time by the Quichua people to process information. This knowledge is reproduced in daily life in the use and management of the land and natural resources (Vacacela, Landázuri and Guarderas, 2005).

of space, criteria of current land use and management conditions in order to conserve and sustainably use the resources of the forest.

In order to achieve the expected results, it was necessary to apply, during all stages of design and implementation of the management plans, participatory methodologies oriented towards the recuperation of ancestral knowledge. These methodologies facilitated the integration of technologies for land, ecosystem and biodiversity management grounded in both ancestral knowledge and technologies of human and environmental sciences. As a product of this combined approach, the project has been able not only to develop and consolidate important local technologies in the application phase of the community management plans, oriented towards the management and conservation of existing biodiversity in the three community territories, but also to strengthen the community organization and regain ancestral wisdom from *apamamas* and *apayayas*.

The area of intervention of the project circumscribed the territories of the Quichua communities of Yana Yacu, Nina Amarun and Lorocachi, located in the border area of the province of Pastaza. Consisting of approximately 250,000 hectares of tropical rainforest characteristic of the Amazon region, the global surface area of the three community territories is home to a total of 300 indigenous Quichua inhabitants who fundamentally sustain their family economy through the management of chacra, ushun, purun, in addition to hunting and subsistence fishing.

These territories are traversed by two important hydrographic basins, the River Curaray to the north and the River Pinduc to the south. Between these two water basins exists a mosaic of terrestrial forest ecosystems and aquatic ecosystems, whose diversity could be considered one of the greatest on the planet, based on the results obtained from the studies conducted.

(7) Financial Information

Table I: Initial and Final allocations by Components

EXPENDITURES BY COMPONENT	GEF			Co-Financer		TOTAL	
	Planned	Modificado	Actual	Planned	Actual	Planned	Actual
1. DESIGNING AND APPLYING THE MANAGMENT PLANES	322,480.00	370,135.95	371,350.32	189,226.00	320,499.89	559,361.95	691,850.21
2. ORGANIZING THE SOCIO ENVIRONMENT INFORMATION CENTER FOR THE INDIGENOUS TERRITORIES OF PASTAZA	83,500.00	82,300.00	80,956.44	-	-	82,300.00	80,956.44
3. TRAINING OF HUMAN RESOURCES	110,540.00	97,205.20	95,974.14	47,140.00	160,622.97	144,345.20	256,597.11
4. OPERATIONAL COST	226,480.00	247,317.36	248,677.61	12,378.00	149,790.57	259,695.36	398,468.18
5. UNALLOCATED	20,000.00	-	-			-	-
TOTAL	**763,000.00**	**796,958.51**	**796,958.51**	**248,744.00**	**630,913.43**	**1,045,702.51**	**1,427,871.94**

The difference between the $763,000,000 US Dollars received from GEF and the $796,958.51 spent is $33,958.51 dollars paid in interests by the *Banco Internacional* on the Project Special Account and devolution of VAT.

Table II: Co-financing and leveraged resources

EXPENDITURES BY CATEGORY	GEF			Co-Financer IBSS and OTHERS		TOTAL	
	Planned	Modificado	Actual	Planned	Actual	Planned	Actual
1. SMALL WORKS	55,000.00	55,051.00	55,209.24	-	-	55,051.00	55,209.24
2. GOODS -EQUIPMENT AND MATERIALS	127,089.00	181,461.95	181,406.48	84,766.00	216,039.89	266,227.95	397,446.37
3. CONSULTANT'S SERVICES	356,396.00	325,486.20	325,352.00	104,460.00	192,303.00	429,946.20	517,655.00
4. NON-CONSULTANT'S SERVICES	83,440.00	119,547.00	119,544.78	23,400.00	23,400.00	142,947.00	142,944.78
5. TRAINING	78,220.00	61,620.00	60,422.06	23,740.00	137,222.97	85,360.00	197,645.03
6. OPERATIONAL COSTS	42,855.00	53,792.36	55,023.95	12,378.00	61,947.57	66,170.36	116,971.52
7. UNALLOCATED	20,000.00	-	-		-	-	-
TOTAL	**763,000.00**	**796,958.51**	**796,958.51**	**248,744.00**	**630,913.43**	**1,045,702.51**	**1,427,871.94**

II. Project Impact Analysis

The results obtained by the project have surpassed initial expectations in that the Quichua communities of Yana Yacu, Nina Amarun and Lorocachi, as part of the implementation of their respective management plans, have established an Inter-Community Biological Conservation Zone as one of the priority activities for the conservation of the territories. This zone identified for conservation brings together the areas located at the delta heads of some important tributaries, such as the River Yana Yacu, Sindi Yacu, Aymu Yacu and Arabela Yacu. It serves as an inter-community biological corridor for the conservation of flora and fauna defined in a participatory manner by the three communities, under common standards of management and conservation of existing flora and fauna at these deltas.

The plans designed by the communities to manage strategic biological resources in the 250,000 ha. area spanning the community territories of Yana Yacu, Nina Amarun and Lorocach included three principal components: a proposal for community zoning based on ancestral criteria of land use, a proposal of Community Standards for the sustainable management of the principal biological resources of the territory, and a proposal for projects to recuperate the quality of life of the families in the three communities. Criteria utilized in developing the management plans included the existence of ancestral spaces, the validity of community regulations oriented towards the conservation of the principal threatened species of fauna (see Annex 01) and sacred places, and the ancestral forms of administration of community justice. Considering its participatory and culturally sensitive approach, this management proposal should be replicable for other indigenous territories in the Amazon.

The participatory mapping process of the community territories was developed by the families taking into consideration important ancestral knowledge of the social and cultural use of the territorial spaces, the classification of terrestrial and aquatic ecosystems, the location and management of ecosystems and species of flora and fauna, the identification of management zones according to the principal productive methods of the communities, and the ancestral mechanisms needed for the conservation of the territory. The types of maps produced include general base maps of indigenous territories, maps of vegetation coverage and current land use, maps of principal ecosystems, and community zoning maps, among others. The previously trained technical team of the CISA was in charge of the digitalization and elaboration of all of the final cartographic products obtained through the project—all digital formats are compatible with respective Arc GIS typologies. The final maps served as important analytical inputs not only to define the conservation strategies, but also to facilitate the design of the overall management plan of the community territories of the Quichua pueblo of Pastaza, during the workshops and courses conducted.

Sketch of a lagoon ecosystem (Barisa Jita, Yana Yacu) and its principal resources

The strengthening of community organization through the different capacity-building events developed with the Quichua communities located in the border areas as part of the project activities has facilitated the development of spaces and opportunities for inter-community meetings during which the community leaders have been able to discuss policies for management and conservation of the territory and the existing resources. As such, the Quichua border communities have engaged in a process of greater organization through the creation of a new Quichua association that currently includes the communities participating in the project as well as other neighboring communities.

(1) Project Impacts:

PASTAZA BIODIVERSITY CONSERVATION PROJECT			
Project Goal	**The goal was to contribute to global ecological equilibrium and the maintenance of biological diversity through the conservation and sustainable use of the resources of the Amazon forest**		
Project Objectives	**Indicators in Project Brief**	**Revised Indicators**	**Results**
To conserve and achieve the management in situ of ecosystems and biodiversity of the Amazon forest, in the territories of the indigenous communities of Pastaza	Participatory strategies in the sustainable management of threatened biodiversity in the communities of Yana Yacu, Nina Amarun and Lorocachi (250.000 Ha.)	No change	Application of three community management plans that include a proposal for zoning oriented towards the sustainable management of resources in a 250,000 ha. area, in the community territories of Yana Yacu, Nina Amarun and Lorocachi.
Project outcomes: For Component 1: Community Management Plans and Pilot Projects:	Indicators For Component 1:	No change	
Physical and Geographic Studies	• A general base map of the indigenous territories of Pastaza. Scale: 1: 250000. Contents: borders, rivers, lakes, human settlements, and roads		A general base map of the indigenous territories of Pastaza (2 million hectares). Scale: 1: 50000. Contents: borders of associations, rivers, lakes, human settlements, main and secondary roads, elevations, as geographical characteristics, names and areas of associations and lakes, names and longitudes of rivers, names of human settlements, and elevations, in digital and print formats.
	• A map of vegetation coverage in the		A map of Vegetation Coverage and Current Land Usage in the Indigenous Territories of Pastaza. Scale: 1:50000. Contents: hillside forests, plains

	indigenous territories of Pastaza. Scale:1:250000. Contents: forests wetlands, pastures and riparian vegetaion		forests, riverside forests, wetlands (swamplands and grasslands), in digital and print formats.
	• A base map of the study area of the territories of Yana Yacu, Nina Amarun and Lorocachi. Surface area: 250,000 Ha. Scale: 1:50.000. Contents: community borders, rivers, lakes, human settlements, roads, elevations.		A base map of the territories of each of the three communities (Yana Yacu, Nina Amarun and Lorocachi). Scale: 1:50000. Contents. Community borders, bodies of water (rivers, streams and lakes), human settlements, main roads, paths, hunting territories, elevations, names and areas of communities and lakes, names and longitudes of rivers, names of communities, in digital and print formats.
	• A map of Actual Land Usage in the study areas of the territories of the 3 communities. Scale: 1:50000. Contents: forests, ranges, wetlands.		A map of Current Land Usage and Vegetation Coverage in the territories of the 3 communities (Yana Yacu, Nina Amarun and Lorocachi). Scale: 1:50000. Contents: primary and secondary forest areas, pastures, cultivation, wetlands (swamplands and grasslands).
	• Digital Model of the Terrain: territories of the 3 communities. Scale: 1:50000. Content: altitudes, 3D display and gradients.		Digital Model of the Terrain of the 3 communities. Scale: 1:25000. Contents: altitudes, 3D display and gradients.

	• A map of the Ecosystems. Area: territories of the 3 communities. Scale: 1:25000. Content: surface area of the different ecosystems identified.		A map of the principal ecosystems of the territories of the 3 communities (Yana Yacu, Nina Amarun, Lorocachi). Scale: 1: 25000. Content: surface area of the principal ecosystems identified (urcu, pamba, yacu pata pamba, turu, cachi, jita, cucha, yacu, yacua). Database of Spatial Topography of the Indigenous Territories of Pastaza to scale 1: 50000, with the following attributes: bodies of water (rivers, lakes, and swamps), populations, access routes (roads, paths, every 40 m) in GIS Arc format. 2 Landsat 7 Satellite Images of the provincial territory of Pastaza with minimal interference of clouds, taken in 2001 and 2002, with 7 multispectrum bands and panchromatic band and a spatial resolution of 30 m. 3 Community Zoning maps of the Quichua territories of Yana Yacu, Nina Amarun and Lorocachi. Various scales. Contents: Management Areas of the territories, ancestral ecosystems and biological sampling sites, in digital and print formats. Two maps of the spawning sites of the charpa turtle and past and present locations of the charpa and alligators. Scale: 1:180000. Two maps of the Shionoa community 1:60000. Contents: ancestral ecosystems, social resources. Eight maps of the Quichua Associations of Canelos, Pacayacu, Sarayacu, Montalvo, Copataza, Anzu, Arajuno & Curaray. Scale: 1:50000. Contents: Location of natural resources, community infrastructure, hunting grounds, fishing, scared sites, borders of the Quichua associations. Forty thematic maps of the Quichua territory of Sarayacu of scales between 1:105000 to 1:375000. Contents: conservation areas, hunting grounds,

			vegetation coverage, diversity and abundance of species, impacts on land and aquatic flora and fauna, territorial borders, micro-river basins, social resources, sampling sites, influence of petroleum. Map of petroleum concesions of Pastaza. Scale: 1:300000. Map of vía Auca. Scale: 1:120000. Map of the Associations of Santa Clara, Anzu, San Jacinto and Jatun Pacha. Scale: 1:110000. Map of the Global Quichua Territory of Pastaza. Scale 1: 400000. All of the cartographic products have been developed in digital formats compatible with Arc/Info & Arc View with its respective GIS typology.
Biological Studies	• Inventories of flora and fauna in the 3 communities: between 2 & 4 representative ecosystems per community.		Participatory inventories of diversity, distribution, abundance and ethnobiology of flora, land fauna (birds & game mammals) and fish carried out in four terrestrial ecosystems (urcu, pamba, yacu pata pamba and turu) & four aquatic ecosystems (atun yacu, yacu, yacua and jita-cocha). In Yana Yacu, 366 species of trees, 51 species of birds & 28 species of game mammals & 140 species of fish were registered. In Nina Amarun, 281 species of trees, 76 species of birds & 41 species of game mammals & 114 species of fish were registered. In Lorocachi, 252 species of trees, 49 species of birds & 29 species of game mammals & 124 species of fish were identified. Participatory diagnostic study of the state of conservation of aquatic fauna in the lagoon of Chunda Muyuna, Yana Yacu, regarding the supply of aquatic fauna, ecological mapping, ancestral classification of fish, ecology and ethnozoology, fishing techniques, perceptions and local representation of fauna, evaluation of the intensity of fishing, current state of fauna.

Socio-Economic and Cultural Studies Management Plans	• Socio-Economic Studies in the 3 communities regarding access and control over usage in the ecosystems and forms of ancestral management. • 3 Management Plans of the territories of the Communities of Yana Yacu, 120000 Ha., Nina Amarun, 80000 Ha. and Lorocachi.		Participatory Socio-Economic Studies in three communities (Yana Yacu, Nina Amarun & Lorocachi) regarding population, family composition, vision of life of the community, social & political organization, management of territory, ecosystems & resources, economic and productive systems, and analysis of current community problems of the three communities. 3 Management Plans of the territories of the communities of Yana Yacu (80000 Ha.), Nina Amarun (83000 Ha.) and Lorocachi (90000 Ha.). The plans were developed in a participatory manner under the constant perspective towards strategic planning during all stages and proposed the recuperation of Sumac Allpa, Sumac Causai and Sacha Runa Yachai. The plans include three principal components: a proposal for community zoning based on ancestral criteria of land use, a proposal of Community Standards for the sustainable management of the principal biological resources of the territory and a proposal for projects to recuperate the quality of life of the families in the three communities. Participatory social monitoring and evaluation studies of the implementation of the management plans in Yana Yacu, Nina Amarun & Lorocachi to analyze the implementation of the components of the plans and evaluate the achievement of the proposed objectives and anticipated impacts. The studies concluded that through the execution of the management plans, the communities have improved their organizational capacity, improved the effectiveness of proposals of territorial organization with community commitment, greater capacity exists to resolve community conflicts, increased the equitable participation of families in conservation and the improvement of biodiversity management practices, reduced the negative impacts on threatened species in the territories and have recuperated important ancestral knowledge. Monitoring and biological evaluation studies of the conservation of the principal ecosystems and species of flora, terrestrial and aquatic fauna of the

Pilot Projects in Biodiversity Management	3 pilot projects, 1 per community, of selected species of flora and fauna.		three communities, in order to determine changes in the diversity, abundance, distribution and conservation of the flora and fauna, replicating methodologies developed during the diagnostic phase. The studies concluded that with the implementation of the management plans, they have been able to manage and conserve the high level of diversity of flora in the forests and support the recovery of threatened species such as the "Huagra" (*Tapirus terrestris*), the "Paushi" (*Mitu salvini*) and other game animals, fish, reptiles and aquatic mammals of the principal terrestrial and aquatic ecosystems of the three territories. 1 Pilot Project in the Management of Phytogenetic Family Gardens implemented in each of the communities, which includes the management of 23 family gardens in Yana Yacu, Nina Amarun and Lorocachi, under the responsibility of local technicians. Management of useful palm trees, fruit trees, timber and medicinal plants. Increased the productivity of all the gardens under management. 18 family mircroprojects in the cultivation and production of useful species in the short cycle in the three communities. The short cycle production has improved the family economy. 1 Pilot Project in the Management of the Charpa turtle in each community, with the implementation of 8 familial animal hatcheries under the responsibility of local technicians, who collect the threatened nests for incubation in the family hatcheries, hatching of turtles, and later free them into protected lagoons. 7,828 turtles have been freed, 3,972 from Atun Charapa and 3,856 from Taricaya, surpassing the initially proposed objective. The technology for the management and conservation of the Charapa turtle has been consolidated through the implementation of these pilot projects and is replicable in other parts of the Amazon.

Participatory Process in the Design and Approval of the Management Plans	• 3 workshops (one per community) for the planning of the studies previously described and for the analysis of results. • 3 workshops (one per community) for the review and analysis of the management plans.		1 Pilot Project of the management of lacustrine fish with ornamental potential in the community of Yana Yacu. Conducted a study on the adaptation to captivity of five species of ornamental fish, in the laboratory of the Biological Station. 1 Pilot Project in the management of fish in the Quichua community of Nina Amarun. Conducted a study on the adaptation and initial management of three species of native fish with reproductive and fattening potential. 1 Pilot Project in the management of Chanlla (*Myoprocta sp.*) and Lumucha (*Agouti paca*) for productive ends in the community of Lorocachi. Established a nursery of 10 reproductive chanllas adapted to captivity with 2 births in the hatchery and initiated the management of juvenile lumuchas. 3 workshops for the Planning of Socio-Environmental Diagnostics (one per community), with the participation of families from each community. These workshops allowed for the identification of the elements of the Sumac Allpa (ancestral ecosystems) and Sumac Causai and capacity building of local diagnostic teams. 3 workshops for the presentation, validation and evaluation of the Results of the Socio-Environmental Diagnostic (one per community) with the participation of families. In these workshops, the results of the diagnostic were analyzed to determine the current state of conservation of the territories and their principal resources. Also, they identified the principal community problems and alternative solutions. 3 workshops conducted for the revision and validation of the management plans (one per community) with families from the three communities to carry out the analysis of the principal components of the management plans: zoning, regulations, project proposals and implementation strategies, monitoring and evaluation.

	• 3 workshops (one per community) for the approval of the management plans.		3 workshops conducted for the final approval of the management plans (one per community) with families from the three communities for the approval of the management plans and participatory agreement of its management. A workshop conducted for the consolidation of the Conservation Strategy for the Quichua Territory of Pastaza and its biodiversity with the participation of 15 Quichua Associations of Pastaza to define territorial management strategies and inter-community zones of biological conservation for the Quichua Association of Río Tigre An inter-community workshop conducted for the final presentation of the project results with the participation of Quichua communities from Yana Yacu, Nina Amarun and Lorocachi.
Pilot projects for the sustainable management of biodiversity	• 30 threatened species and 10 medicinal species of the Amazon forest under management, in 20 phytogenetic gardens located in the communities of Yana Yacu, Nina Amarun and Lorocachi.		Management of a minimum of 30 species and a maximum of 81 species of useful plants per garden (including a mosaic of threatened and medicinal species) from the Amazon forest in 23 phytogenetic gardens located in the communities of Yana Yacu, Nina Amarun and Lorocachi.
<u>For Component 2:</u> Establishment of the Pastaza Socio-Environmental Information Center: Construction of basic infrastructure, purchase of hardware and	For Component 2: • A research station constructed and equipped in the	No Change	Two research stations constructed and equipped in the Quichua communities of Yana Yacu & Nina Amarun. In Yana Yacu, a research laboratory has been implemented for the management of native species of fish and includes short

software, communications, field equipment	community of Yana Yacu.		wave communications equipment for monitoring the territory. In the two stations, the laboratories have been equipped with basic equipment and materials for biological research and community mapping. A GIS laboratory composed of a central database server; 3 professional work stations for development, technological support and quality control; 2 laptop computers for collection of information in the field and periphery (A3 printer, laser printer, A0 plotter and scanner, with ArcGIS hardware and software for the elaboration of cartographic products).
Geographic Information System designed and linked with the socio-environmental database	• Database designed and structured with socio-environmental and geographic information.		Modular database with three thematic modules: 1) Module of georeferenced catalogue with cartographic and thematic information; 2) Module of biological monitoring with applications to measure biodiversity, flora composition and relative abundance of fauna; and 3) Socio-Cultural Module to input social/community/ family information. Each module can generate reports from the information input into the system. An additional module of the database to make comparisons of biodiversity and abundance of species among sampling sites, ecosystems & community territories.
	• Geographic Information System applied in the environmental planning, management, monitoring & evaluation of the indigenous territories of Pastaza.		Geographic Information System applied in the environmental planning, management, monitoring & evaluation of the indigenous territories of Pastaza. The system links geographic information with socio-environmental information through multiple comparative applications of the database. Socio-environmental information from the diagnostics and monitoring reports from the three border communities have been input into the system. The system generates comparative reports, which allows for the determination of final technical conclusions regarding the state of conservation in the study sites. All the technical applications and information from the Geographic

			Information System of the CISA have also been replicated for the entire participatory mapping process in the territory of Sarayacu, as well as the three Quichua territories located on the border.
<u>For Component 3:</u> **Design and implementation of Capacity-building Program on Environment and Natural Resource Management**	For Component 3: • A capacity-building program designed for local and community technicians specialized in Environmental Management. • 20 technicians from the communities trained in environmental management, in the formulation process (including members of the three selected communities and others).	No change	A capacity-building program for local and community technicians in Environmental Management designed and applied to develop trained human resources for the sustainable management and conservation of the ecosystems and the biodiversity of the indigenous territories of Pastaza, emphasizing the participatory diagnostic methodologies, design of management plans, management of biodiversity, socio-environmental monitoring and evaluation of the indigenous territories and their management plans. Three capacity-building modules in the management of the Geographic Information Systems and Georeferenced Databases conceived and applied in sequential order with three consecutive courses for the technicians of the Network on the management and application of the Arc GIS 8.3 and the management of the database for monitoring. 33 technicians from 13 Quichua communities of Pastaza trained in techniques for participatory community mapping and georeferencing, protocols for biodiversity inventories and methodologies in participatory social diagnostics. The technicians, through the application of the knowledge gained through the course, enriched the information of the socio-environmental diagnostic of Yana Yacu. 36 technicians from 18 Quichua communities of Pastaza and 2 Zápara communities trained in the methodology of the design of management plans, collective rights and the development of community regulations and project design. As final products of the course, they developed the principal components of the management plan of Yana Yacu. 21 technicians from 10 Quichua communities of Pastaza trained in the

	• 8 specialists from the network trained at a higher level in topics related to project activities (These technicians are members of the three selected communities and other communities).		management technologies of ancestral crops and the management of the Charapa turtle, wild rodents adapted to captivity and the investigation of conservation of the *lagartos*. The course facilitated the dissemination of diverse techniques in the management of flora and fauna among participating communities for the improved implementation of the pilot management projects established in the communities. 24 technicians from 12 Quichua communities trained in the methodologies and tools for the application of socio-environmental monitoring and evaluation of the implementation of the community management plans. As an output of the course, the participants elaborated diverse inputs needed for the monitoring and evaluation phase. 28 technicians from the Network (5 Quichua communities, institutions of the Network and OPIP) trained in the methodologies of the design of the Management Plans in the indigenous territories. The participants elaborated a proposal for the vision, stages and principal components of the management plans for the Quichua communities. 8 technicians from the Network trained in the use of MS Project software for the management of the projects. 12 technicians from the Network trained in the use of the basic tools of Arc GIS. 8 technicians from the Network trained in the fundamentals and methodologies of Strategic Planning for the design of the Management Plans. The participants elaborated the principal components of the plan for Lorocachi. 9 technicians of the Network trained in the theoretical/practical use of Arc

			GIS 8.3., with emphasis on the generation of thematic cartography. The participants of the course produced thematic maps of the province of Pastaza. 8 technicians of the Network trained in the use of specialized tools of Arc GIS 8.3., with emphasis on the editing, consultation and analysis of information and management of the database for biological monitoring for the Quichua border territories. The participants developed thematic maps of the Quichua communities. 12 technicians from the Network trained in methodologies for Environmental Evaluation and Management of projects to increase the technical capacity for the implementation of natural resource management projects in the Quichua territory of Pastaza.
	• 20 community leaders trained in environmental management to finalize the project (includes 20 members of the three selected communities and others).		33 leaders from 13 Quichua communities of Pastaza trained in methodologies of participatory socio-environmental diagnostics. 36 leaders from 18 Quichua communities of Pastaza and 2 Zápara communities trained in collective rights and community zoning. 21 leaders from 10 Quichua communities of Pastaza trained in the management of flora and fauna in situ. 24 leaders from 12 Quichua communities trained in the socio-environmental monitoring and evaluation of the management plans of the indigenous territories.
	• Members from the 3 selected communities trained and applying environmental management plans to the conclusion of the		12 members of the community of Yana Yacu, 17 members from Nina Amarun and 40 members from Lorocachi trained in the methodologies and application tools, monitoring and evaluation of the Community Management Plans.

	project. • 3 students from the communities of Yana Yacu, Nina Amarun and Lorocachi attending university degree programs. • A school module designed for learning the Sumac Allpa.		3 students from the communities of Nina Amarun, Pablo López de Oglán Alto and Sarayacu attending the initial years of university degree programs in Environmental Engineering, Agronomic Engineering and Law, respectively. A proposal for an educational module for learning the Sumac Allpa for the Bilingual Intercultural Centers of Pastaza elaborated in the agreement between IQBSS and DIPEIB-Pastaza. A publication produced on diversity, ecology and the use of fish in the three Quichua territories based on the results of the biological diagnostics. A publication on the diversity and ecology of the three lagoons of the Quichua territory of Yana Yacu. Two booklets printed on the management of the Charpa turtle and management of ancestral crops through co-financing. A publication on the methodologies of socio-environmental community diagnostics printed through co-financing. A 38” video on the principal results achieved through the project.
Administration	Final workshops with project stakeholders on evaluation of the implementation of the project according to established outputs and impact indicators. Preparation of annual reports.		Mid-term and final workshops held with input from project stakeholders. Annual reports completed on a timely basis.

(2) Project Sustainability

The likelihood that the project's achievements will be sustained over time is high, primarily due to the culturally respectful and participatory nature of the approach utilized in designing and implementating the project. The vision of the management plans considers what the communities want to achieve in the long run with the execution of the management plan and is sustained by the ancestral vision of life of the Quichua people, which has as its principal elements the recuperation of environmental equilibrium (Sumac Allpa) and the recuperation of social community equilibrium (Suman Causai) with the permanent recuperation and application of ancestral knowledge (Sacha Runa Yachai).

Through the elaboration of management plans based on an ancestral vision of life of the Quichua people of Pastaza, the formation of mixed teams of indigenous specialists, the implementation of productive projects for biodiversity management, and the development of a capacity-building program for local leaders and youth, the project successfully integrated local knowledge and customs into conservation strategies.

It was of fundamental importance to link the indigenous technical specialists from the institutions of the Inter-institutional Network of Specialists in Environmental Management in Pastaza with the *apamamas* and *apayayas,* experts in ancestral knowledge, in order to ensure that the management plans were based in the fundamental Quichua philosophies of quality of life and captured the true aspirations of the families of the communities. The principal ancestral knowledge supported by these technicians was related to: 1) the identification and classification of ecosystems; 2) the seasonal management of the forest resources, 3) the ancestral guidelines for the management of the territory, ecosystem and resources; 4) the identification of Supayuc Sacha, needed for the conservation of ecosystems, habitats and threatened species; 5) the forms of access of the *ayllu* on the territory, its ecosystems and resources; 6) establishment of the hunting grounds, as an ancestral strategy of territorial control, sustainable management of resources and recreation of the roles of the ayllu.

The project has achieved the formation of community groups of technicians with extensive experience in the methodologies for the investigation of community biodiversity, design and administration of management plans, management of flora and fauna, socio-environmental monitoring and evaluation of the territories. These teams are formed by members of the families of the communities who live permanently in these territories, thereby assuring the permanent application of the management plans and conservation of community territories. The community teams of technicians have adequate technical capacity and tools necessary to replicate socio-environmental community monitoring and evaluation in the indigenous community territories. The trained personnel are able to conduct concrete activities to acquire biological and social information in other Quichua communities, which strengthens the new processes of territorial planning and organization.

The formation of mixed teams comprised of technical specialists in geographical, biological and social areas, and indigenous technicians from the communities, was of crucial importance to the design of the management plans. The permanent support from the community technicians increased the value for ancestral knowledge and technology in resource management considered in the management plans. The external technicians provide support principally with study methodologies and community technicians offered their great ancestral knowledge of biology, ecology, management and conservation of community biodiversity.

The successfully developed capacity-building program for technicians and indigenous leaders has also consolidated the process of formation of future young community leaders with knowledge of community organization, territorial planning and natural resource management in

the communities of Yana Yacu, Nina Amarun and Lorocachi, and in the Quichua communities located on the banks of Curaray and Bobonaza. Currently, each one of the Quichua communities located in these places has trained technicians that can support future territorial planning and natural resource management processes, assuring the sustainability of the actions undertaken for the conservation of the entire Quichua territory of Pastaza.

In this way, the elder and wiser people handed down their vision of life and ancestral knowledge about the management of the land and resources to the younger generations, attaining the consolidation of proposals for the management of resources. They considered this proposal an ancestral community vision whose articulation strengthened the practice of ancestral knowledge. This is a method of assuring the sustainability of the management plans. The management plans have the endorsement of the Organización de Pueblos Indígenas de Pastaza (Organization of Indigenous Peoples of Pastaza).

The planned community workshops created a space for constructive discussion of policies while supporting sustainable alternatives for the management of the resources of the territory. There was a focus on strengthening of community organization, as the communities had assumed a fundamental role as managers of the participatory processes of identifying impacts and creative alternatives oriented towards the management of community biodiversity, based on the recuperation of ancestral knowledge, technologies and practices. A community management committee has been formed in each community to oversee the future implementation of the management plan.

By establishing a community standard for the management of natural resources as a component of the plans, the committee has also allowed for the development of community statutes, which have also been presented in the CODENPE, in order to obtain the legal recognition of communities such as Yana Yacu. The process is in negotiations. In this way, the proposal to legalize the Quichua community border territories can also be advanced.

The implementation of the conservation projects in areas of high biodiversity and sustainable management of species of flora and fauna strengthened the economy of the community families, who consider that they have improved their family economy through the increased productivity of their *ushun* and *purun*, and with the establishment of microprojects of species of short cycle crops. The surplus from the production (particularly for the short cycle projects), allowed them to have a seed bank for future crops and facilitate small-scale trade or the exchange for production obtained of corn, peanuts or other managed vegetable species.

The participatory experience of the management of the Charpa turtle through the pilot project developed by the communities of Nina Amarun, Yana Yacu and Lorocachi has been so motivating that the Quichua communities of the middle basins of Curaray and Bobonaza seek to establish mechanisms of exchange or sale of the young Charpa turtle to repopulate their principal aquatic ecosystems for their conservation, and to be participants in capacity-building for the management of these important resources. In this way, it becomes possible for the implementing Quichua communities to transfer the technologies for the management of these important biodiversity resources to other indigenous communities of the province. Moreover, this increases the possibility of internal trade that improves the economic conditions of the local families.

The project also has contributed to the elaboration of thematic cartography of the territories of the Quichua associations of Canelos, Pacayacu, Sarayacu, Montalvo and Curaray, in addition to the community territories of Yana Yacu, Nina Amarun and Lorocachi. The acquisition of this information, which covers the indigenous territories of Pastaza, was made possible through an inter-institutional agreement between IQBSS and IACYT-A, such that all the associations now have up-to-date basic cartographic information, facilitating inter-ethnic and inter-community delimitation as part of the consolidation of the Quichua territorial circumscription of Pastaza.

IQBSS has worked permanently in the design of conservation strategies in all of the border area since 1992, and is seeking to raise new funds so that these conservation efforts underway have the necessary continuity over the long run. In this context, it is important to note that in November 2005, the implementation of the Capacity-Building Project for the 12 Amazon Communities of the province of Pastaza for the Sustainable Management of their Territories and Natural Resources began. The project was signed by agreement between IQBSS and the Association for the Cooperation with the South, ACSUR- Las SEGOVIAS. The objective of the project is to increase the social and economic self-management of the Quichua communities of the province of Pastaza, in order to obtain from the Amazon forest the resources necessary for their subsistence using ancient knowledge and sustainable techniques. With the amount of €421,334.87 euros, the project plans to strengthen the process of territorial organization and community zoning developed, and implement natural resource management projects that were planned in the respective management plans.

(3) Replicability

There is strong potential for replicating this project in other Amazon communities and indigenous communities of other ethnicities. The management plans implemented by the Quichua communities of Yana Yacu, Nina Amarun and Lorocachi can be taken as models of conservation in the indigenous Amazon territories. The community zoning and standards developed in the management plans is based on the ancestral knowledge of management of spaces and existing resources in the territories, and has come to be the fundamental components to assure the sustainability of the management plans and the improved administration of the existing resources in the areas of territorial management. These two components are implemented through family commitment, considering the community assembly as the maximum authority for the administration of the territory and the community resources. From this perspective, all of the Amazon indigenous communities should be in conditions to replicate this methodology with successful results with regards to the conservation of community resources.

During the entire process, appropriate methodologies and tools were developed for the diagnostic, design and application, and monitoring and evaluation stages of the management plans, constructed from a vision of life and ancestral knowledge of the indigenous Quichua families. One concrete case where the methodologies and tools of participatory mapping, socio-environmental diagnostic and design of management plans developed by the border communities have been successfully replicated was in the territory of the Quichua Association of Sarayacu. Indigenous technicians from this association and other Quichua communities from Pastaza participated during the entire capacity-building process of the different stages for the participatory construction of the management plans. In actuality, these technicians seek to lead processes of natural resource management in their respective communities.

The Socio-Environmental Information Center, constructed and equipped with project funds, also offers a database that contains extensive biological information and use of strategic natural resources of the indigenous territories on the border, which could very well provide inputs for the knowledge and management of biodiversity and the management of ecosystems of the high Amazon, given the similarity of the existing species between the middle and low-lying basins of the province.

The management technologies developed for the improved productivity of the phytogenetic family gardens, and the recovery and conservation of the Charapa turtles and fish, have proven successful, and in valid technological terms that can be replicated at the level of all of the indigenous communities of the lower Amazon where these biological resources exist. These management technologies of Amazon species have generated multiple benefits in terms of the

recuperation of ecosystems, habitats and populations of threatened species; support of scientific knowledge of the Quichua people on biology, ecology, management of species of flora and fauna; the possible generation of economic resources for the families, and food security, and family health, as explained in the previous section.

(4) Stakeholder Involvement

The project maximized stakeholder involvement through an integrated approach that included not only local indigenous families and community leaders, but also members of the institutions of the Inter-Institutional Network of Specialists in Environmental Management of Pastaza. In addition, indigenous specialists from IACTY and technical specialists from CTRA were involved in many project activities.

According to their work experience in the region, the members of the institutions of the Inter-Institutional Network of Specialists in Environmental Management of Pastaza have been linked to different activities planned by the project—design workshops, implementation planning, monitoring and evaluation of results of the project. In addition, indigenous technical specialists from IACTY-A formed part of the design teams for the management plans of the communities of Nina Amarun and Lorocachi, provided that the technical specialists from CTRA were linked to the capacity-building process as coordinators of the courses or assistants for the management of the database and inputting of cartographic information for the Quichua territories in the CISA.

The existing relationship among the institutions of the Network also allowed for the establishment of an inter-institutional agreement between IQBSS and the IACYT-A, within the framework of execution of the project "Consolidation of the Management of Territorial Circumscription of the Quichua People of Pastaza." Through this project it was possible to increase the number of indigenous technicians trained in topics of socio-environmental diagnostics and design of management plans from Canelos, Pacayacu, Sarayacu, Montalvo and Curaray, as well as the generation of up-to-date thematic cartography of the Quichua associations of Canelos, Pacayacu, Sarayacu, Montalvo and Curaray, with the endorsement of the OPIP. Similarly, an agreement was established between IQBSS and the Native Peoples of Sarayacu for the implementation of all the thematic cartography needed of the Sarayacu territory for the design of the management plan. The same was developed in the Socio-Environmental Information Center of Pastaza and the technical assistance for the formulation and application of the Management Plan for Sarayacu.

The Organization of the Indigenous Peoples of Pastaza participated, with their delegated technicians, in the design, implementation planning, monitoring and evaluation of results of the project. It also offered respective accompaniment for the endorsement of the design and implementation of the management plans, and support in the consolidation of organizational strengthening and territorial management of the Quichua border communities through the creation of the Quichua Association of Río Tigre that unites the Quichua communities of Nina Amarun, Lorocachi, Victoria and Yana Yacu.

IQBSS also was able to substantially increase its co-financing funds to strengthen the management and conservation strategy of natural resources of the Quichua border communities through the signing of a grant agreement with the Government of Cantabria and the Basque Government through the Peace and Solidarity Foundation of Spain for the implementation of the project "Conservation and Sustainable Management of the Amazon Resources of the Quichua Communities of Pastaza, Ecuador." With this project, the following activities were implemented: 1) management of a lacustrine ecosystem in the basin of the River Pinduc; 2) management of the agricultural ecosystems with nutritional and medicinal species of the

Amazon forest; 3) in situ management of the Charapa turtle; 4) management in captivity of the *guatín* in association with agricultural ecosystems; 5) formation of community teams for natural resource management and planning. These activities were implemented by the Quichua communities of Yana Yacu, Nina Amarun, Lorocachi and other Quichua communities of the Curaray basin.

The entire design and implementation process of the management plans of the three communities incorporated the direct participation and previous consultation with the beneficiary families. They also initially planned the socio-environmental diagnostics, identifying their territory, ecosystems and species of greatest interest in order to know the local status of conservation. Later, the families selected among their members the technicians with the greatest ancestral knowledge to participate as the technicians responsible for uncovering the information required in the diagnostic phase and later in the monitoring phase. The results of the diagnostics were disseminated by the community technicians to the other participating families in community workshops. In addition to analyzing the results of the diagnostics, a constructive debate was initiated on the principal socio-environmental problems identified as well as alternative solutions.

With these inputs and guidance by a team of technical specialists in ancestral knowledge from the Network, the families in each community structured their management plan, stemming from an ancestral vision oriented towards the recuperation of Sumac Allpa, Sumac Causai and the recovery of Sacha Runa Yachai. The community regulations were established in assembly, and approved by consensus, as well as the zoning and the project proposals posed in the respective management plans. In each community, specific functions were defined that all the families assumed in order to carry out the monitoring and evaluation of the application of the plans over time. A team of community technicians representing each community is comprised of a management committee for the management plan in order to control the monitoring and evaluation. The evaluations will be made periodically by the community assembly. For the implementation of the pilot projects of natural resource management, the families selected the participating technicians by assembly, who would be responsible for the management of selected natural resources.

Three young members of the Quichua communities of Nina Amarun, Sarayacu and Oglán Alto were associated with the Project as recipients of scholarships for university studies.

(5) Monitoring and Evaluation

The management plans developed by the three communities contain strategies and tools for socio-environmental monitoring and evaluation of the plans' application, under the responsibility of the community. In the final stage of the project, participatory socio-environmental monitoring and evaluation studies of the implementation of the management plans were carried out. Results of these studies demonstrated that despite the fact that the management plans were recently implemented, they have helped to improve territorial management, organizational capacity and the resolution of community conflicts, as well as the participatory management and conservation of the ecosystems and biodiversity and the restoration of important related ancestral knowledge. This system of socio-environmental monitoring and evaluation of the implementation of the management plans has a participatory and gender focus.

The CISA has technological tools to facilitate the monitoring of future conservation of the indigenous territories in a sistematized manner. The field data obtained through biological monitoring is input into the Georeferenced Database designed for this purpose, generating reports on the diversity and relative abundance of species in each sample site. An additional module allows for the comparison of results of the reports from each sample site, at the level of

ecosystems or community territories, grouping the basic information. In the end, it is possible to obtain comparative reports. These reports will allow them to carry out a technical analysis of the current state of conservation of natural resources and their exploitation, through workshops and community assemblies.

The technical specialists from the Network have been trained in a sequential manner to input and process the necessary reports to conduct analyses of the state of conservation of the territories. In the future, they seek to operationalize the management of the database in each of the communities. A baseline has been established for the monitoring system of the conservation of the indigenous territories, and many of the technological tools developed for this purpose are being utilized in other indigenous territories, as in the case of Sarayacu. At least two technical specialists from the Network have worked as assistants for the CISA and are fully trained to continue with the entry and analysis of the data in the future.

The monitoring seeks to verify the progress and compliance of the results and activities planned in the components of the management plans, and to register qualitative and quantitative changes in the level of conservation of the ecosystems and biodiversity. To carry out the monitoring, a team of community technicians was consolidated to form a management committee with specific responsibilities. In addition, the families use self-monitoring tools such as cards for hunting, fishing and use of forest resources to monitor resource management activities and conduct periodic inventories of fauna in the established management zones. The family self-monitoring offers information about the progress of implementation and compliance with the zoning and community regulations prescribed in the management plan as well as the state of populations of local fauna.

With these inputs, the families, meeting in community assembly quarterly, process and analyze the information with the support of the coordinators to make decisions about the management of the territory, the established management zones, the practices of resource exploitation and conservation of biodiversity. In the final stage of project execution, the community monitoring system improved to the level of producing community biological monitoring (that include an analysis of the self-monitoring cards and inventories of fauna) and social reports (in the social aspect, they used focus group techniques and tools, discussion groups and surveys). During this phase, the families of the three communities were trained and applied all the monitoring tools designed, to such a degree that a complete protocol[2] has been established for socio-environmental monitoring with its respective tools and mechanisms for processing data.

The evaluation seeks to establish the measure by which the objectives of the management plans are being obtained, and tries to identify the impacts achieved. To carry out the socio-environmental evaluation, techniques derived from the System of Participatory Analysis of the Impact of Projects (SPAIP for its Spanish acronym) are utilized. This methodology is useful for identifying community strengths and weaknesses apparent during the implementation of the management plan, and offers a base for planning the future continuity of the plan. It uses instruments, such as the construction of a community life line, analysis of trends, list of activities, matrix of influences and a barometer of sustainability. The quarterly community biological monitoring reports allow for the elaboration of a final analytical evaluation report of the state of conservation of the ecosystems and biodiversity. A mid-term and final socio-environmental evaluation of the implementation of the management plans will be carried out.

[2] Monitoring protocol is understood as the set of procedures or methodologies and tools that allow the measurement of change over the time prescribed for the implementation of the management plan.

(6) Cost Effectiveness

Through capacity-building activities targeting local families and the network of indigenous technicians, the project achieved a high degree of cost effectiveness. Several strategies were considered for the implementation of the components to permit the development of effective and successful work. One of these strategies identified capacity-building events as: 1) the initial stage for the formation of the indigenous technicians from the communities in topics related to the socio-environmental diagnostics, design of the management plans, monitoring and evaluation with the production of important inputs for all the stages previous mentioned in a participatory manner; 2) the formation of community groups of indigenous technicians with the ability for the entire management of the management plans; and 3) the technical refinement of the technical specialists from the Network, as a permanent support team in the diverse activities of the project.

During the entire design and application process of the management plans, the families of the three communities were trained in the methodologies, registration of data, management of tools, processing of information, analysis and evaluation of results, and direct application of training offered in the registration and analysis of data from their own local reality. In this context, the community socio-environmental diagnostic studies, the management plans, and the monitoring and evaluation studies were greatly enriched by the support of the families and the community technicians. The Network technical specialists directly collaborated in the design of the management plans and the management of the information from the CISA.

In addition, according to the activities planned, the project tried to maintain the same working group of indigenous technicians from the communities and external consultants throughout the different stages of the process: the diagnostic, design of management plans, monitoring and evaluation. In this way the knowledge and practical experience acquired by the community technicians in all the stages of design and implementation of the management plans taught them to develop sustainable processes for community management of natural resources. This also contributed to the fine-tuning of the initially formulated methodologies, leading to concrete results in the different studies conducted.

It was fundamental that the management plans had an ancestral vision and considered the philosophical references of Sumac Allpa, Sumac Causai and Sacha Runa Yachai through the participation of the Quichua technical specialists, who worked as specialized consultants in ancestral knowledge regarding the management of the territory and community natural resources, from the institutions of the Network. In this way, the project achieved the participatory construction of the management plans, considering ancestral vision and knowledge.

Finally, it is important to mention that during the application of the different pilot projects in resource management, greater results were achieved than initially planned, considering the integral capacity-building of the community technicians responsible for the implementation of the management systems of the gardens, Charpa turtles, rodents and fish, through the implementation of the needed infrastructure, management in situ of the species, the biometric registry, the elaboration of monitoring, and final evaluation reports of the results. The community technicians are able both to resolve the principal problems regarding the management of species that are presented throughout the management and production cycle and to offer activities that facilitate the transfer of these technologies to other Quichua communities of Pastaza.

(7) Special Project Circumstances:

Initially, the project considered the implementation of three separate management plans in three Quichua communities, Yana Yacu, Nina Amarun and Shiona, though another community called Lorocachi eventually took the place of Shiona. During implementation, it was established that the families of the communities of Shiona were clearly itinerant, leaving the community territories for long periods of time. The prolonged absences of the majority of the families of Shiona in their territory limited the capacity of community organization and the impossibility to implement a strategy of natural resource management as conceived by the project, taking into account the absence of the members of the community, the low level of community organization and the presence of internal conflicts. As such, the IQBSS considered as an alternative the relocation of all of the project activities that initially were considered for Shiona to the Quichua community of Lorocachi, located in the border zone of Pastaza that brought together improved conditions to begin the complex process of territorial organization and natural resource management that were implied in the management of a management plan. This alternative was presented for consideration and later approved by the World Bank.

There was also a considerable delay in the delivery of the funds corresponding to the first and third disbursements of the project. As a result, respective adjustments to the planned activities of the project were made in such a way that despite the delay, it did not alter the successful compliance with the indicators originally established by the project.

(8) Institutional Capacity / Partner Assessments:

According the execution plan initially established in the project, the Technological Center of Amazon Resources, together with the IQBSS, would be responsible for the supervision of the preparation of the community management plans. The establishment of the Center of Socio-Environmental Information Center would be under the supervision of the IQBSS and the Amazanga Institute. Nonetheless, during the implementation phase of the project, it was considered pertinent that the personnel of the Amazanga Institute participate directly in the design of the management plans, taking into consideration that this institute has a technical team of indigenous Quichua professionals specialized in the topic. At the same time, the technical team of the Technological Center of Amazon Resources expressed its interest to be linked to the activities derived from the establishment of the Socio-Environmental Information Center, such that one of its technicians was linked as an assistant of the CISA during the entire implementation period. In this way, the technicians of the institutions of the Network were connected to the project activities, according to their practical experience and interest, strengthening the results achieved by the project.

Through the inter-institutional agreement between the IQBSS and the Amazanga Institute, it was also possible to increase the number of Quichua technicians trained in the design of the management plans, and additionally elaborated the basic up-to-date cartography of the Quichua associations of Canelos, Pacayacu, Sarayacu, Montalvo and Curaray.

Another agreement signed with the Native Peoples of Sarayacu, in the framework of the implementation of the project for Conservation of the Environment of the Territory of Sarayacu oriented towards the design of its territorial management, permitted the updating and elaboration of thematic maps of the Sarayacu territory, as an input of fundamental importance to the design of the management plan.

The organizational strengthening of the Quichua border communities through the implementation of the capacity-building events and workshops conceived during the implementation of the project generated new spaces of analysis of alternatives to the sustainable management of natural resources and community territories financed by the project. As such, the leaders of the Quichua border communities considered it pertinent to create a new Quichua

association that united the Quichua territories located in this zone, with the endorsement of the Organization of the Indigenous Peoples of Pastaza, in the final phase of the project.

(9) Incremental Cost Analysis Evaluation:

Under the baseline scenario, a total amount of US$ 248,744 was proposed to be co-financed by the Network of local indigenous organizations and international partner NGOs, given that the GEF contribution was US$ 763,000 for the implementation of the project.

The GEF alternative comprised a 30-month program and allowed for the strengthening of the process of territorial organization and sustainable management of the natural resources of the Quichua border territories, with the implementation of three community management plans that currently serve as references of great importance for the generation of new similar processes in other Quichua communities of Pastaza. In addition, it has consolidated community teams of specialized community technicians in natural resource management with practical experience in the conservation of threatened species in the region.

At the end of the project, the total amount of co-financing gained through the management of IQBSS increased substantially, reaching a total of US$ 630,913.43, distributed in the following manner: a) Design and application of the management plans (US$ 320,499.89); b) Capacity-building of human resources (US$ 160,622.97); and c) Operating costs (US$ 149,790.57).

The total cost of the GEF Alternative presented in this report was US$ 1,427,871.94. This amount also includes US$ 33,958.51, which corresponds to the devolution of VAT and interests generated by a special account. The total cost of the GEF Alternative was distributed in the following manner:

1. Design and application of three management plans in the Quichua territories of Yana Yacu, Nina Amarun and Lorocachi, in a surface area of approximately 250000 Ha. US $ 691.850,21.
2. Establishment of the Socio-Environmental Information Center of Pastaza, which currently has up-to-date thematic cartographic information for the entire province of Pastaza. US $ 80,956.44.
3. Capacity-building of technicians and community leaders in socio-environmental diagnostics, design, application, monitoring and evaluation of community management plans. US $ 256,597.11.
4. Operating costs. US $ 398,468.18.

The results achieved by the project, after 30 months of implementation were the following:

1. Three management plans for the Quichua territories of Yana Yacu, Nina Amarun and Lorocachi implemented in a participatory manner by the families, in a surface area of 250.000 Ha. of tropical rainforests. The management plans contain a proposal for territorial zoning, regulations for the management and conservation of natural resources, and the application of pilot projects oriented towards sustainable management of more than 50 species of useful plants, 2 species of Charapa turtles, a species of rodent, and three species of fish.
2. A Socio-Environmental Information Center of the Quichua Territories of Pastaza established, with trained personnel, equipment, current geographic and biological information in the Quichua border territories. The Center has provided trained technicians, information, tools, methodologies and inputs for the new processes of territorial organization, as in the case of Sarayacu.

3. A capacity-building program in natural resource management for technicians and indigenous leaders that provided for the strengthening of the processes of management of the resources of the communities and the community organization of the Quichua communities of Pastaza.

III. Summary of Main Lessons Learned

A) Lessons Learned Regarding the Incorporation of Ancestral Knowledge and Customs into the Design and Implementation of the Management Plans

1. **It is of great importance that the process of community territorial organization is founded in ancestral knowledge and techniques regarding the management of the territory, ecosystems and local biodiversity that the Quichua families apply in their daily lives.** This helps to ensure that territorial zoning and community standards prepared in the plans are both effective for the conservation and sustainable management of resources and easy to apply for the communities. Furthermore, this approach makes possible a true empowerment in the management of the plan.

2. **One important lesson learned during the execution of the project is that in order to facilitate the adequate transmission, consolidation and application of ancestral knowledge, taking into account the monolingual character of the Quichua border communities, it is important to integrate mixed teams of technicians, including both outsiders and indigenous Quichua technicians, who are responsible for the entire process of territorial planning and natural resource management.**

3. **It is of invaluable importance to link with the *yachacs, apamamas* and *apayayas* during all the stages of formulation of the management plans because these individuals are depositories of extensive ancestral knowledge related to the sustainable management of the territory, ecosystems and biodiversity.** By establishing these linkages, the validity of the *ayllu* is recovered as a social, economic and political unit within the community and the generational transmission of *sacha runa yachai* to the young.

4. **All decisions related to the control and management of the territory and community resources should be taken by consensus through community assemblies with the participation of all members of the community (elderly, men, women and youth).** Since the indigenous territories are collective property, decision-making corresponds to the community assembly regarding territorial administration and management of resources, as the principal community patrimony.

5. In the participatory management of the community natural resources, **the ancestral practice of *minga*, developed by the families helps to obtain better results in the development processes**. The families during *minga* not only support with their work effort, but also generate a process of exchange of experiences and practical knowledge that directly influence the generation of improved technologies in natural resource management.

6. **The processes of domestication, management and production of flora should be led by the women**, taking into account the ancestral knowledge of the useful species of chacra, ushun and purun, as well as all the existing rituals to assure better fertility of the land and greater harvests are transmitted through the apamamas to their daughters over time. At the same time, all the experiences in the management of local flora that they

want to implement in the future should be supported by ancestral knowledge of successional management of the agroecosystems of chacra, ushun and purun.

7. **The proposals for territorial zoning of the Quichua territories should consider the existence, management and conservation of the sacred ancestral areas identified by the families as "Supayuc Sacha".** Supayuc Sacha is the living jungles, the jungles with power, the jungle in which there are protective spirits of environmental equilibrium. One of the principal requirements to achieve Sumac Allpa is the conservation of Supayuc Sacha within the ancestral Quichua vision.

8. **The experiences of biodiversity management of the territories should be generated at the family level,** taking into consideration that the *ayllu* is a social, economic and political unit within the community. The *ayllu* is an extended family where relatives are recognized by generational order and by gender, which permits each member of the family the use of resources, management of the ecosystems and the control of the community territory.

9. **It is essential to strengthen and consolidate the capacity of the communities for management and community organization**, as good community organization is the basis for the application of the management plans.

B) Lessons Learned Regarding Prioritizing Ecosystems and Species for Conservation Purposes

10. In the process of design and application of the management plans of the indigenous territories of the Amazon, **the conservation of strategic ecosystems, such as the Muriti Turu (flooding forests of palms) and Cucha (remaining lagoons) should be prioritized**, as those ecosystems present the following characteristics:

    - High biological diversity;
    - Elevated concentration of species of flora and fauna of great cultural and economic importance for the life of the families, such as the aquatic turtles, lizards, fish, "peccaries", peacocks, macaws and useful palms;
    - High seasonal productivity of the resources for hunting, fishing and useful fruits;
    - Sites of great ancestral spirituality and are considered as the dwelling of the god of the forest and water; and,
    - Areas with great susceptibility to environmental impacts.

11. **The participatory formulation of community norms oriented towards the protection of certain key species, such as the Huagra (*Tapirus terrestris*), the Paushi (*Mitu salvini*), the Yacu Puma (*Pteronura brasiliensis*), the Runa Lagartu (*Melanosuchus niger)*, the Paiche (*Arapaima gigas*) and large catfish, taking into accounting their ancestral cultural, ecological and nutritional importance, constitutes a valid alternative to the recuperation and conservation of these highly sensitive species of fauna**, and are currently on the road to extinction in the Amazon region.

12. **The enrichment of the biodiversity of the phytogenetic gardens with useful species from the Amazon forest, in addition to increasing the food products of the family diet, also allow for the recovery of highly sensitive birds, such as peacocks and macaws, as well as the larger primates.** These species, when the gardens are in production, frequently visit these places of agricultural management seeking food and temporary refugee during their displacement from nearby forests.

13. The management technology of the Charapa turtle consists of the recovery of the threatened clutches, incubation of the eggs in family hatcheries, and later the release of the turtles born in the hatcheries into the protected lagoons. **There has been 90 percent success of hatching of the Charapa turtle eggs in incubation, and this constitutes a valid reference that can be replicated in the entire Amazon region to assure the long-term conservation of the Charapa turtle.**

14. According to the results achieved through the project, **the floristic and aquatic resources (especially reptiles and fish) of the territories demonstrated to be the most promising to initiate experiences of sustainable resource management, given its high diversity and greater ease of management.** For many species of the Amazon forest (nutritional, medicinal and timber plants) and some species of aquatic fauna (turtles and fish), families in the communities have developed successful technologies.

C) Lessons Learned Regarding the Design and Establishment of the Socio-Environmental Information Center - CISA

15. At the initial stage of design of the CISA, the idea was to establish this Center at Puyo, the nearest town to the beneficiary communities. Following the proposed design, the CISA comprised a GIS laboratory with a central database server; 3 professional work stations, technological support and quality control; 2 laptop computers for collection of information in the field and complementary equipment (A3 printer, laser printer, A0 plotter and scanner, with ArcGIS hardware and software for the elaboration of cartographic products). **Given the limited technology and access to communications al Puyo, there was a consensus to establish CISA at the IQBSS' office in Quito.**

16. **This situation might limit the access to the Center by the beneficiary communities. To overcome such difficulty and to allow local communities to provide relevant information to monitor the status of the ecosystems at their territories, two research stations were constructed and equipped in the Quichua communities of Yana Yacu & Nina Amarun.** In Yana Yacu, a research laboratory has been implemented for the research of management of native species of fish and includes short wave communications equipment for monitoring the territory. In the two stations, the laboratories have been equipped with basic equipment and materials for biological research and community mapping. In addition, the technical specialists from the Network as well as members of the communities have been trained to provide input and process the necessary reports to conduct analyses of the state of conservation of the territories, using very simplified and user friendly formats.

17. The CISA has technological tools to facilitate the monitoring of future conservation of the indigenous territories in a sistematized manner. The field data obtained through biological monitoring are registered into the Georeferenced Database designed for this purpose, and produces reports on the diversity and relative abundance of species in each sample site. An additional module allows for the comparison of results of the reports from each sample site, at the level of ecosystems or community territories, grouping the basic information. In the end, it is possible to obtain comparative reports.

    Being that information is a decision making tool, **it is extremely important to secure the sustainability of the operation of the CISA and leverage additional resources to maintain the updating of the databases and the generation of relevant information for territorial planning.**

D) Lessons Learned Regarding the Biodiversity Management Pilot Projects

18. Although very successful, the sole process of preparation of the community management plans was not enough to secure the ownership and full understanding of the proposed conservation strategies by the beneficiary communities. **The implementation of key aspects of the management plans in the form of pilot projects provided the opportunity to demonstrate that such strategies could be developed at the operational level.**

19. A fundamental mechanism to assure and guarantee the application of the management plans of the indigenous territories is the generation of sustainable productive projects of biodiversity management of the community territories. In this way, **in addition to generating economic resources for the family, pilot projects also prevent the over-exploitation of the forest resources.**

20. The biodiversity management pilot projects were selected for their potential to demonstrate the applicability of the management plans. **The implementation of these projects in areas of high biodiversity and sustainable management of species of flora and fauna increased to some extent the revenues of the community families**, who consider that they have improved their family economy both through the increased productivity of their *ushun* and *purun* and with the establishment of micro-projects of species of short cycle crops. The surplus from the production (particularly for the short cycle projects) allowed them to have a seed bank for future crops, and facilitated small-scale trade or the exchange for production obtained of corn, peanuts or other managed vegetable species.

21. Another successful participatory pilot project developed by the communities of Nina Amarun, Yana Yacu and Lorocachi involved the management of the Charpa turtle. This experience has been so motivating that the Quichua communities of the middle basins of Curaray and Bobonaza seek to establish mechanisms of exchange or sale of the young Charpa turtle to repopulate their principal aquatic ecosystems for their conservation. Community members also wish to be participants in capacity-building for the management of these important specie. In this way, **there is an enhanced probability of transferring the technologies for the management of turtles from the implementing Quichua communities to other indigenous communities of the province, in addition to the possibility of internal trade that improves the economic conditions of the families involved**.

22. **The management technologies developed for the improved productivity of the phytogenetic family gardens, and the recovery and conservation of the Charapa turtles and fish, have proven successful and in valid technological terms that can be replicated** in other indigenous communities of the lower Amazon where these biological resources exist.

23. These management technologies of Amazon species have generated multiple benefits in terms of the recuperation of ecosystems, habitats and populations of threatened species; support of scientific knowledge of the Quichua people on biology, ecology, management of species of flora and fauna; the possible generation of economic resources for the families, and food security, and family health. However**, long term strategies coupled with additional financial resources need to be secured in order to keep these successful initiatives operating.** At some point, communities must be able to auto-sustain these projects and become less dependent on external resources.

E) Lessons Learned Regarding Training and Capacity-building

24. **Capacity-building of technicians, leaders and members of the community has been considered a transversal theme in all stages of the participatory design of the management plans (diagnostic, design, application, monitoring and evaluation) because this articulation allows the communities to assume ownership from the beginning of the process of managing their territory and natural resources, under the perspective of the permanent application of collective rights.**

25. For future planning processes, **it should be considered priority to link the *yachac* into the entire capacity-building process planned in the future, taking into consideration that the *yachac* are the greatest sources of Sacha Runa Yachai and have a primordial role in guiding the practices of sustainable management of the ecosystems and biodiversity of the communities.**

26. **For the sustainability of the management plans, the superior technical specialization of the youth from the Quichua communities is of vital importance for territorial management and natural resource management.** This should be assumed through the management of capacity-building programs implemented by the indigenous organizations, taking into account that it is a long-term process that cannot be covered through the execution of projects, whose duration is limited.

27. **The strengthening of community organization through the different capacity-building events developed with the Quichua communities located in the border areas as part of the project activities has facilitated the development of spaces and opportunities for inter-community meetings, where the community leaders have been able to discuss policies for management and conservation of the territory and the existing resources.** As such, the Quichua border communities have engaged in a process of greater organization, through the creation of a new Quichua association that currently includes the communities participating in the project and other neighboring communities.

28. One of the modalities adopted under the project was the selection of three members of the beneficiary communities to complete university studies on topics related to natural resources management in their territories. The different level of high school education among the candidates created some difficulties and delayed the selection of students. **When formal education is selected as one of the capacity building strategies, it is important to take into account the time necessary to select the students and the time available to complete their professional career.** To secure the completion of this activity, IQBSS was forced to seek additional funds form other souces to allow these students to complete their careers beyond the project implementation period.

F) Lessons Learned Regarding Institutional Arrangements for Project Implementation

29. As previously explained, the project was developed by the Inter-institutional Network of Specialists in Environmental Management, which incorporated the Quichua Institute of Biotechnology (IQBSS), the Amazon Environmental Institute of Science and Technology ("Amazanga" IACYT-A), Technological Center of Amazon Resources and the Omaere Foundation. The network is a combination of local NGOs that work on environmental issues in the province of Pastaza and technicians from the Quichua communities.

    A shortcoming at the initial stage of project implementation was the limited participation of the members of the network in the assigned activities, which forced IQBSS to take the lead of the implementation of all the components. One of

the main reasons for this situation was the limited technical and administrative capacity of the other members of the Network. To overcome this problem, key member of the institutions of the network were incorporated to the capacity building activities of the project and by the end of the first year, each organization was capable of specific responsibilities under the project.

In order to avoid such situations and whenever a complicated institutional framework for implementation is proposed, a careful capacity assessment of all the member organization should take place. Responsibilities should be assigned according to the expertise and technical and administrative capacity of each one.

We consider that the relationship between IQBSS and the World Bank during the implementation of the project has been positive. It is precise to mention that during the entire phase of implementation we had adequate and opportune attendance by the representatives of this institution through the supervision missions and consultations conducted. We only had one substantial delay in the delivery of funds for the first and third disbursements of the project, as it was necessary to make modifications to the execution plans prepared in order to achieve the project indicators.

IV. Financial Management Status

January-December 2003

The Financial Management Specialist reviewed the financial statements' audit report of the GEF-MSP Grant for Ecuador - Biodiversity in Pastaza Project for the period ended on December 31, 2003 issued by the firm BDO Stern Cía. Ltda.

Project Financial Statements:

Acceptability: The report has been prepared in accordance with Bank guidelines, contains the necessary opinions and management letter. The amounts shown as received by the project coincide with the Bank's registers and in general, the audit work has been carried out in accordance with the Terms of Reference.

Audit opinions: The auditors issued unqualified (clean) opinions on the Statement of Sources and Uses of Funds; on the Statement of Cumulative Investments, and on the balance and transactions of the Special Account Statement.

Compliance: In general, the auditors found that the GEF-MSP Ecuador - Biodiversity in Pastaza Project complied with the terms of the agreement and the applicable laws and regulations.

Internal Controls: Internal controls have been evaluated as satisfactory.

January-December 2004

The Financial Management Specialist reviewed the financial statements' audit report of the GEF-MSP Grant for Ecuador - Biodiversity in Pastaza Project for the year ended December 31, 2004 issued by the firm BDO Stern Cía. Ltda.

Project Financial Statements:

Acceptability: The report has been prepared in accordance with Bank guidelines, contains the necessary opinions and management letter. The amounts shown as received by the project

coincide with the Bank's registers and in general, the audit work has been carried out in accordance with the Terms of Reference.

Audit opinions: The auditors issued unqualified (clean) opinions on the Statement of Sources and Uses of Funds; on the Statement of Cumulative Investments, and on the balance and transactions of the Special Account Statement.

Compliance: In general, the auditors found that the GEF-MSP Ecuador - Biodiversity in Pastaza Project complied with the terms of the agreement and the applicable laws and regulations.

Internal Controls: Internal controls have been evaluated as satisfactory.

January-October 2005

The Financial Management Specialist reviewed the financial statements' audit report of the GEF-MSP Grant for Ecuador - Biodiversity in Pastaza Project for the period of ten months ended on October 31, 2005 issued by the firm BDO Stern Cía. Ltda..

Project Financial Statements:

Acceptability: The report has been prepared in accordance with Bank guidelines, contains the necessary opinions and management letter. The amounts shown as received by the project coincide with the Bank's registers and in general, the audit work has been carried out in accordance with the Terms of Reference.

Audit opinions: The auditors issued unqualified (clean) opinions on the Statement of Sources and Uses of Funds; on the Statement of Cumulative Investments, and on the balance and transactions of the Special Account Statement.

Compliance: In general, the auditors found that the GEF-MSP Ecuador - Biodiversity in Pastaza Project complied with the terms of the agreement and the applicable laws and regulations.

Internal Controls: Internal controls have been evaluated as satisfactory.

ANNEX 01

CONSERVATION STRATEGIES IMPLEMENTED FOR THE PRINCIPAL THREATENED SPECIES OF THE QUICHUA TERRITORIES OF YANA YACU, NINA AMARUN AND LOROCACHI

SPECIES	THREATENED CATEGORY	STRATEGY OF CONSERVATION IMPLEMENTED BY THE PROJECT
Huagra (*Tapirus terrestris- Tapiridae*)	NT (IUCN, 2000), in the immediate future could be considered as Vulnerable.	Community regulation oriented towards the prohibition of hunting of this species during five years and the creation of conservation zones.
Chuba (*Ateles belzebuth – Cebidae*)	VU (IUCN,2001) at high risk of extinction in the immediate future[3].	Community regulation oriented towards the reduction of animals hunted and the creation of conservation zones.
Cushillu (*Lagotrix lagotricha – Cebidae*)	VU (IUCN,2001) at high risk of extinction in the immediate future.	Community regulation oriented towards the reduction of animals hunted and the creation of conservation zones.
Puca Puma (*Puma concolor – Felidae*)	VU (IUCN,2001) at high risk of extinction in the immediate future.	Community regulation oriented towards the prohibition of hunting of this species and the creation of conservation zones.
Inchig Puma (*Panthera onca – Felidae*)	VU (IUCN,2001) at high risk of extinction in the immediate future.	Community regulation oriented towards the prohibition of hunting of this species and the creation of conservation zones.
Yacu Puma (*Pteronura brasiliensis – Mustelidae*)	CR, in critical danger, faces high risk of extinction in the near future.[4]	Community regulation oriented towards the prohibition of hunting as considered Supai and the creation of conservation zones.
Chulu Hualli (*Harpia harpyja – Accipitridae*)	Rare, according to local perception and specialized bibliography.[5]	Community regulation oriented towards the prohibition of hunting of this species as it is considered an indicator of the good quality of the habitat, and the creation of conservation zones.

[3] Tirira,D. (Ed). 2001. Libro Rojo de los Mamíferos del Ecuador. SIMBIOE/Ecociencia/Ministerio del Ambiente/UICN. Serie Libros Rojos del Ecuador, Tomo 1. Quito
[4] Tirira, D. (Ed). 1999. Mamíferos del Ecuador. SIMBIOE. Quito, Ecuador.
[5] Ridgely, R., P. Greenfiel & M. Guerrero. 1998. Una lista anotada de las Aves del Ecuador Continental. Fundación Ornitológica del Ecuador, CECIA. Quito.

Yami (*Psophia crepitans – Psophiidae*)	Rare, according to local perception and specialized bibliography.	Creation of conservation zones.
Paushi (*Mitu salvini – Cracidae*)	Extremely rare, according to local perception and specialized bibliography.	Community regulation oriented towards the prohibition of hunting of this species during five years and the creation of conservation zones.
Ruyac Uma Pahua (*Pipile pipile – Cracidae*)	Not common, according to local perception and specialized bibliography.	Creation of conservation zones and the improvement of habitats with the management of fruit plants of the gardens.
Caruntzi (*Penelope jaqcuacu – Cracidae*)	Rare, according to local perception and specialized bibliography.	Creation of conservation zones and the improvement of habitats with the management of fruit plants of the gardens.
Atun Charapa (*Podocnemis expansa – Pelomedusidae*)	Not common, according to local perception.	Community regulation of the protection of adults in reproductive age, creation of conservation zones and management ex situ with the implementation of family hatcheries for the production of turtles.
Taricaya (*Podocnemis unifilis – Pelomedusidae*)	Not common, according to local perception.	Community regulation of the protection of adults in reproductive age, creation of conservation zones and management ex situ with the implementation of family hatcheries for the production of turtles.
Runa lagartu (*Melanosuchus niger – Alligatoridae*)	Rare, according to local perception.	Community regulation oriented towards the prohibition of hunting as considered Supai and the creation of conservation zones.
Puma Zungaru (*Pseudoplatystoma fasciatum – Pimelodidae*)	In critical danger, with high risk of extinction in the near future.[6]	Community regulation for the prohibition of unsustainable fishing (dynamite, chemicals, etc.) and the creation of conservation zones.
Saltun Bagri (*Brachyplatystoma filamentosum – Pimelodidae*)	In critical danger, with high risk of extinction in the near future.	
Arawaru Bagri (*Brachyplatystoma flavicans – Pimelodidae*)	In critical danger, with high risk of extinction in the near future.	
Sapote Bagri (*Paulicea luetkeni-Pimelodidae*)	In critical danger, with high risk of extinction in the near future.	

[6] Mojica, J., C. Castellanos, S. Usma & R. Alvarez (Eds).2002. Libro Rojo de Peces Dulceacuícolas de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Ministerio del Medio Ambiente, Bogotá, Colombia.

Pintadillu (*Pseudoplatystoma tigrinum-Pimelodidae*)	In critical danger, with high risk of extinction in the near future.	
Muru Santi Bagri (*Brachyplatystoma juruense – Pimelodidae*)	Vulnerable, with moderate risk of extinction or population decline in the medium term.	
Paiche (*Arapaima gigas - Osteoglossidae*)	Vulnerable, with moderate risk of extinction or population decline in the medium term.	
Arawanasa (*Osteoglossum bicirrhosum – Osteoglossidae*)	Vulnerable, with moderate risk of extinction or population decline in the medium term.	

ANNEX 02

LIST OF KEY PROJECT DOCUMENTS[7]

- Participatory Management Plan of the Yana-Yacu Community-Pastaza, Ecuador
- Participatory Management Plan of the Lorocachi Community-Pastaza, Ecuador
- Participatory Management Plan of the Nina-Amarun Community-Pastaza, Ecuador
- Social Assessment of the Yana-Yacu Community
- Social Assessment of the Lorocachi Community
- Social Assessment of the Nina-Amarun Community
- Ecological Assessment of the Yana-Yacu Community
- Ecological Assessment of the Lorocachi Community
- Ecological Assessment of the Nina-Amarun Community
- Field Manual for the Monitoring of Biodiversity applicable to the quichua communities of Pastaza
- Community norms for the sustainable management of natural resources at the communites of Yana Yacu, Lorocachi and Nina-Amarun
- Fish inventory of the communities of Yana Yacu, Lorocachi and Nina-Amarun

[7] All of the project documents were published between January 2004 and October 2005.